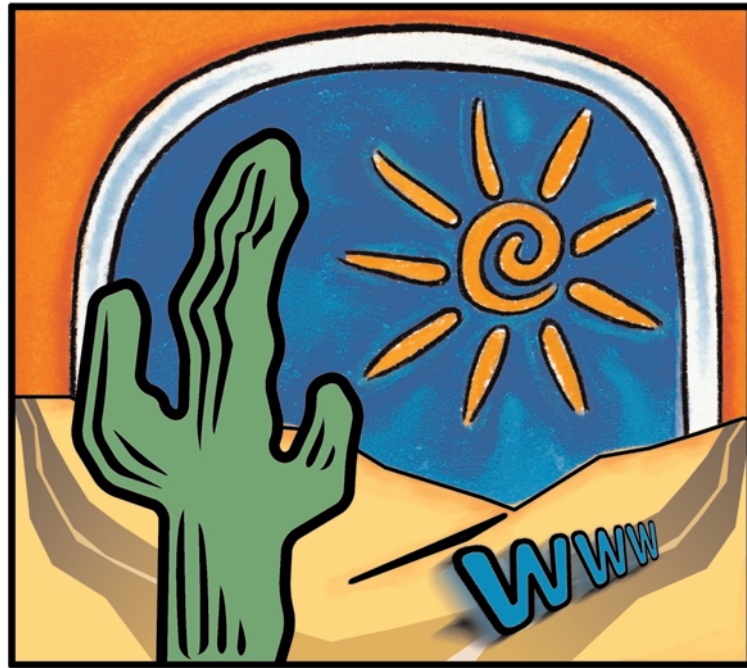# Arizona Health-*e* Connection Roadmap

Briefing Paper — December 2005

"If we want safer, higher quality care, we will need to have redesigned systems of care, including the use of information technology to support clinical and administrative processes…the current care systems cannot do the job. Trying harder will not work. Changing systems of care will."

— Institute of Medicine,
Crossing the Quality Chasm

Arizona Health-*e* Connection Roadmap

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Table of Contents

Executive Summary

Consensus has emerged among leaders in both the public and private sectors that Health Information Technology (HIT) and Health Information Exchange (HIE) play key roles in addressing the mounting challenges facing our nation's healthcare system. The Institute of Medicine, some of the nation's largest employers, provider and physician groups, members of Congress, nearly every federal government healthcare agency, a growing group of governors and the President himself have called for investment in electronic health records and interoperability.

The adoption of HIT and HIE (also called "interoperability") promises to transform the current healthcare system by decreasing healthcare delivery costs, ensuring that patients have access to the highest quality, most efficient, and safest care, and giving providers access to a longitudinal electronic health record at the point of care. And in light of recent natural disasters and bioterrorist events, the need for interoperability has heightened to ensure that systems can communicate with emergency workers during disasters and that patient-specific healthcare information (e.g., medication history) can be accessed when needed, regardless of where the patient previously received care.

Despite evidence that HIT improves the quality, safety and efficiency of patient care, our nation's healthcare industry lags far behind other industries in IT investments. The reasons for this lag are:

• Lack of standards necessary to create interoperability across the healthcare system;

• Complex organizational and clinical process change requirements to adopt electronic health records;

• Privacy and confidentiality concerns; and

• Lack of financial incentives for using HIT.

Healthcare leaders in both the public and private sectors are beginning to tackle these barriers through a growing number of diverse initiatives at the federal, state and local levels. At the local level, more than 100 new or operating health information organizations or initiatives in nearly every state of the nation are emerging to tackle a wide range of issues. Many projects are focused on developing a health information infrastructure to deliver clinical results and information to practicing clinicians and other providers at the point of care. Others are seeking to facilitate patient-provider communication, eligibility and enrollment checking, and the use of data for clinical decision support and evidence-based medicine. The key themes heard throughout the country are the need for national standards to support interoperability; the need for incentives to encourage the adoption of HIT; and the need for private-public sector collaboration.

There is momentum and interest in Arizona for building support for HIT and connectivity in this state. On Aug. 30, 2005, Gov. Janet Napolitano issued Executive Order 2005-25 to develop the *Arizona Health-e Connection Roadmap*. Under the Governor's Executive Order, the Health-*e* Connection Steering Committee is charged with developing a road map for Arizona to achieve statewide electronic health data exchange between insurance companies, healthcare providers and consumers of healthcare as well as exploring issues related to the implementation of electronic medical records. The *Roadmap* is consistent with the goals of President George Bush and the Office of the National Coordinator for Health Information Technology (ONCHIT) to "achieve 100 percent electronic health data exchange between payers, healthcare providers, consumers of healthcare, researchers, and government agencies as appropriate."

Since the issuance of the Executive Order, the state conducted a "Call to Action Summit" on e-Health Oct. 5, 2005. This was an initial step to raise awareness and engage diverse healthcare leaders and stakeholders in Arizona. As a follow up to the Call to Action, the forty-one member Steering Committee, five Task Groups (Clinical, Financial, Technical, Legal and Governance) and a project management team will be working over the next six months to create the *Roadmap*. This process will be a multi-stakeholder coordination across the state to establish priorities, synchronize with national policies, decrease common barriers, and identify needed policies to promote the implementation and adoption of health information technology and exchange.

To begin creating the *Roadmap*, the project management team interviewed more than twenty-five Arizona state leaders. These interviews confirm that HIT is increasingly viewed as an important tool to address the healthcare challenges facing the state. Moreover, high healthcare costs and the need to improve quality outcomes are contributing to a sense of urgency for implementing health information exchange and many leaders see a window of opportunity for the state to provide coordinated leadership for the burgeoning healthcare technologies and exchange initiatives in Arizona. The leaders viewed costs and financing as the main barriers to achieving e-health information exchange in Arizona, although concerns about privacy, security, and consumer acceptance closely followed. Several leaders presented divergent views on regional versus state-wide approaches to health information exchange, but significant support exists for a state-level approach.

Finally, a need was also expressed to support Arizona's higher percentage of smaller, independent physician practices and the importance of rural hospital and Native American community participation in any exchange effort. Overall, the Arizona leaders interviewed are willing to participate in efforts to establish healthcare information exchange; however, a strong early requirement is to stay focused, action-oriented and demonstrate value and meaningful incentives. The project management team also reviewed key health information laws and regulations in Arizona to evaluate potential challenges to the development of an e-health infrastructure in the state. Overcoming these challenges to facilitate HIE efforts will involve difficult policy decisions, amendments to Arizona statutes and regulations and heavily coordinated efforts across stakeholders.
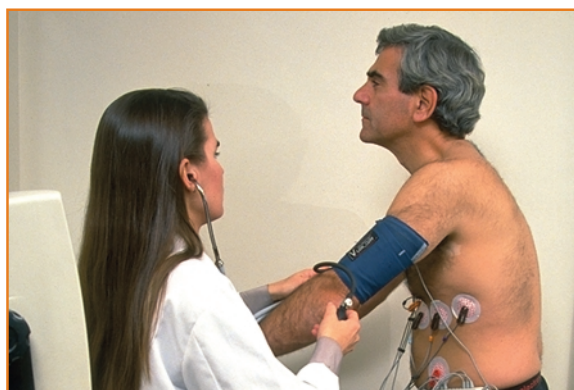
I. Understanding the National Agenda

A. Background

Leading authorities such as the Institute of Medicine (IOM), some of the nation's largest employers, provider and physician groups across the country, members of Congress and nearly every federal government healthcare agency have called for investment in electronic health information systems deployment. President Bush, during an address in April 2004, declared that every American would have an electronic health record within ten years.[1]

Towards this end, the President created a new sub-Cabinet level post: the National Coordinator for Health Information Technology, reporting to the Secretary of the Department of Health and Human Services. Secretary Mike Leavitt said that adoption of HIT and HIE will provide "better care at lower cost, fewer medical mistakes, and less hassle."[2] Secretary Leavitt is working with hospitals, physician practices, insurance companies and vendors through a federally-charted, private-public collaboration called the American Health Information Community. The American Health Information Community will provide recommendations to HHS on how to make health records interoperable, and assure that the privacy and security of those records are protected.

There is enormous momentum around HIT and HIE at the national and local levels. The financial imperative for reducing our healthcare costs is clear: U.S. healthcare spending rose 7.7 percent to $1.68 trillion in 2003, and the Centers for Medicare and Medicaid Services' states that domestic healthcare spending in 2004 totals about $1.8 trillion, and will continue to grow faster than the economy.[3-4] In 2011, the first group of baby boomers will reach the age of 65, marking the beginning of 77 million baby boomers approaching a time when they will use healthcare resources and consume a large portion of our healthcare services.[5]

The crisis is already impacting the nature and composition of the healthcare provider workforce. Escalating malpractice insurance premiums and the increasing challenges of an overly complex healthcare system are causing many clinicians to leave medical practice altogether. The United States is in the midst of a nursing shortage that is expected to intensify; according to the U.S. Bureau of Labor Statistics, more than one million new and replacement nurses will be needed by 2012.[6] In a July 2002 report by the Health Resources and Services Administration (HRSA), thirty states were estimated to have shortages of registered nurses in the year 2000. The shortage is projected to intensify over the next two decades with 44 states plus the District of Columbia expected to have RN shortages by the year 2020.[7]

Access problems, already made difficult by the complexity of the healthcare system, are further complicated for those lacking appropriate healthcare coverage. Today, 15.8 percent of the U.S. population is uninsured,[8] leaving close to 44 million Americans without financial coverage for major medical emergencies and/or access to needed medical care on an ongoing basis.

Concern about medical errors is prevalent. Studies sponsored by the Agency for Healthcare Research Quality (AHRQ) and reports by institutions such as the Institute of Medicine (IOM) and other highly regarded organizations show patient safety is among the top healthcare system challenges. Adverse events occur in up to 3.7 percent of hospitalizations, with up to 13.6 percent of those hospitalizations leading to death.[9] Similar statistics are found in the outpatient environment, where one study revealed that adverse drug events occur in 5 to 18 percent of ambulatory patients.[10] Forty-seven percent of patients surveyed in 2000 by AHRQ and the Kaiser Family Foundation said they were concerned about experiencing a

medical error. Further, a 2001 Robert Wood Johnson survey found that 95 percent of doctors, 89 percent of nurses and 82 percent of healthcare executives reported serious medical errors.

While there are many opportunities to improve care through the use of clinical guidelines and decision support, currently very few healthcare providers utilize the available resources. According to a 2003 New England Journal of Medicine report documenting the appropriate treatment for 7,528 adults revealed that American adults, on average, receive only a little more than half (54.9 percent) of the healthcare measures recommended for their conditions.[11] Bringing clinical knowledge and information about the patient to the point of care through HIT will help to close the gap between what the evidence tells us in accordance with guidelines and treatment protocols, and the care, interventions, and procedures that are actually delivered.

As if these challenges are not enough, the U.S. healthcare delivery system is now confronted by the prospect of a public health crisis once unthinkable. Recent threats including those related to severe acute respiratory syndrome (SARS) and West Nile Virus, as well as the ongoing threat of bioterrorism, underscore the vital significance of disease surveillance and interoperability in protecting the public from natural and unnatural outbreaks. The momentum to adopt HIT and HIE has only been heightened by our recent natural disasters, such hurricanes Katrina and Rita, which highlight the importance for HIT adoption and interoperability to provide care to our citizens, regardless of where their health records were created.

Harnessing HIT for Better Patient Care

Today, the United States is at an important crossroads regarding the management and delivery of healthcare. Evidence is clear and compelling; the way care has been delivered in the past does not fit the healthcare environment today. We must become more efficient, more effective, and more creative in our thinking. It is here that HIT holds enormous potential for improvement.

The U.S. healthcare system, representing approximately $1.68 trillion or 15.3 percent of the nation's

gross domestic product,[12] is highly fragmented. Information abounds, but is stored in a variety of formats (often paper-based), leaving vital pieces of a patient's history, for example, unconnected. It is widely recognized that there are industry-wide productivity losses resulting from the inefficiencies of the system. Each healthcare entity, public and private—including clinicians, hospitals, insurers, and researchers—gathers and holds its own information, most often in paper form. In an electronic information age when vital data can be transferred electronically at the speed of light, only a fraction of healthcare data is accessed and transferred digitally. More than 90 percent of the estimated 30 billion healthcare transactions in the United States each year are still conducted by phone, fax or mail.[13] Studies have shown that nearly 30 percent of healthcare spending in the United States, or up to $300 billion each year is for treatments that may not improve health status, may be redundant, or may be inappropriate for the patient's condition.[14]

The absence of readily available, comprehensive, patient-centric health information and access to clinical knowledge negatively affects healthcare at every level. Research shows that physicians spend an estimated 20 percent to 30 percent of their time searching and organizing information.[15] Alarmingly, up to 81 percent of the time, physicians do not find patient information they need in a paper-based medical record.[16] As a result, it is estimated that 20 percent of lab and x-ray tests are performed because prior results are unavailable and that one in seven hospitalizations occur because prior patient information is not available.[17]

An expanding body of research points to HIT's potential for reducing the inefficient use of resources.[18] For example, one study indicates that the use of ambulatory electronic health records (EHRs) can produce a savings of $78 billion to $112 billion annually.[19] Such cost reductions are realized because duplicative procedures are avoided, staff productivity is increased, medical information is conveyed more efficiently, and medical claims are processed more efficiently.

Utilization of Computerized Physician Order Entry (CPOE) is another case in point. According to study by the Center for Information Technology Leadership

(CITL), full adoption of CPOE in the ambulatory environment can generate an annual savings of $44 billion in reduced medication, radiology, laboratory, and hospitalization expenditures.[20] Another CITL study indicates that standardized healthcare information exchange among healthcare IT systems could deliver national savings of $86.8 billion annually after full implementation and could result in significant direct financial benefits for providers and other stakeholders.[21]

The CITL CPOE data also showed that more than two million adverse drug events and 190,000 hospitalizations per year could be prevented using IT.[22] Similarly, evidence from a Brigham & Women's Hospital study concluded that use of CPOE could reduce error rates by 55 percent, from 10.7 to 4.9 per 1,000 patient days.[23] Yet another study, this one conducted by Kaiser Permanente, found that when physicians used a CPOE system in treating intensive care patients, incidents of allergic drug reactions and excessive drug dosages dropped by 75 percent. The study also showed that the average time spent in the intensive care unit dropped from 4.9 days to 2.7 days, reducing costs by 25 percent.[24]

There has been a large amount of research focused on the benefits of HIT; however, cost models for HIT use and implementation for both regional and national health information networks have been lacking. Recently, a national health information network (NHIN) report (authored by an expert panel of nationally recognized healthcare experts) gave important insight into broad functionality and interoperability costs. This study, published in the *Annals of Internal Medicine*, reported that to achieve an NHIN it would cost $156 billion in capital investment over 5 years and $48 billion in annual operating costs.[25] It is particularly important because it is the first study of its kind to break down NHIN costs into the sub-

categories of capital costs, functionalities and interoperability and offers tangible numbers on the capital, operating and interoperability costs that accrue to each healthcare stakeholder. Report findings will inform the evolving federal debate on financing and incentives and cost/benefit models. It also suggests that the debate over HIT legislation and funding must reach a new level of sophistication to be relevant.

Healthcare IT Investment: Playing Catch-up

Despite evidence that IT improves the quality, safety and efficiency of patient care, the healthcare industry lags far behind other industries in IT investments. For example, while IT investment claimed 6.5-11.1 percent of revenues in the consumer services, insurance and financial industries in 2002, only 2.2 percent of healthcare industry revenues were spent on information technology in the same year. HIT expenditures are expected to grow over the next several years. Growth estimates vary from 5-7 percent, up to 18 percent per year.[26]

The low adoption rates are also seen in planned healthcare spending. For example, 40 percent of healthcare organizations surveyed planned to spend 1.5 percent or less of their total operating budgets on IT, and 36 percent set spending at 2 to 4 percent.[27] In comparison, the average IT investment for other industries is 8.5 percent.[28] On the individual practitioner level, only 5 to 10 percent of physicians use electronic medical records in their practices. A similar finding emerges from studies about use of electronic prescriptions. Here the research shows that less than 5 percent of U.S. physicians currently "write" prescriptions electronically.[29]

At the facility level, while 13 to 15 percent of hospitals have implemented some form of CPOE, physicians in the organizations entered less than 25 percent of their orders using the system.[30] Here, however, some progress is being made. According to a recent survey by the American Hospital Association (AHA), major health providers are beginning to make significant investments in EHR. AHA's survey found that in 2004, 64 percent of hospitals had a patient's current medical record (observations, orders, progress notes) - one of the four components of an EHR - compared with 24 percent in 2000.

B. Strategies Underway to Address Barriers to Health Information Technology Adoption

National healthcare leaders in both the public and private sectors are beginning to tackle a number of barriers to HIT adoption. Those barriers include the lack of standards necessary to create interoperable systems; the organizational and clinical process change required in provider institutions and clinician offices; and the lack of financial incentives for HIT.

Standards

Standards play a critical role in achieving interoperability across siloed electronic applications within our healthcare system. Public-private sector collaboratives such as the Markle Foundation's Connecting for Health Initiative and federal agency-led initiatives such as the Consolidated Health Informatics initiative have made considerable progress in developing consensus and driving the adoption of such standards. To further standards adoption, HHS Secretary Leavitt announced the formation of a national collaboration, the American Health Information Community (AHIC), which will help nationwide transition to electronic health records – including common standards and interoperability. Additionally, some of the nation's larger public and private sector purchasers are beginning to build requirements for standards into their incentive programs and contracts. Also, private sector organizations such as the Certification Commission for Healthcare Information Technology have emerged to begin development of processes for certification of products by such standards.

Organizational/Clinical Process Change

A number of initiatives are now underway which are designed to support the level of organizational and clinical process change required to migrate to electronic systems. The draft "Eighth Scope of Work" provides funding to the quality improvement organizations (QIOs) through the Centers for Medicare and Medicaid Services and includes components that require QIOs to provide technical assistance to small physician practices as they begin using EHR and

other clinical systems. The Agency for Healthcare Research and Quality's National Resource Center for Health Information Technology will play a critical role in not only helping its grantees and contract recipients implement HIT, but serve as a resource to other stakeholders who will be making the migration to electronic healthcare systems over the next several years.

Financing

The issue of financing is probably the largest barrier to HIT adoption in the United States. The current healthcare financing system fails to provide incentives for payers and providers to work together in creating administrative and clinical efficiencies or promoting the quality of care.[31] While providers now bear most of HIT implementation costs, many of the benefits from HIT investment in both quality and efficiency accrue to the payer, not the provider. In fact, one study shows that providers retain only 11 percent of the benefit.

For example, improved disease management that reduces the total cost of care and improves health outcomes actually may represent a loss of revenue to providers, who experience reduced visits or admissions. Thus, there is a misalignment of incentives among those who pay to implement HIT (providers) and those who stand to benefit financially (payers).[32]

In addition to changes in the payment system, there is a need for upfront funding for many institutions and clinicians. Many vital healthcare information technology systems are capital-intensive, but both hospitals and physician groups generally lack substantial capital or sufficient positive cash flow to finance large investments. A number of programs are now underway to clear financial barriers, and are described in further detail in the section "Leadership Within the Private Sector" of this report.

C. The Role of Federal and State Government

The Administration

Several federal agency initiatives across a broad range of departments are now underway to accelerate the development and adoption of both HIT and HIE. In addition to the extensive work now being conducted within the Department of Health and Human Services (DHHS), other departments and agencies such as the Department of Defense, the Department of Veterans Affairs, and even the Office of Personnel Management are involved.

(a) Department of Health and Human Services – The Office of the National Coordinator for Health Information Technology (ONCHIT) and American Health Information Community (AHIC)

The appointment of David J. Brailer, MD, PhD as National Coordinator for Health Information Technology, provided coordination and leadership within the federal government to accomplish President Bush's goal of providing a majority of Americans with an electronic medical record within 10 years. In July 2004, Dr. Brailer unveiled the *Framework for Strategic Action,*[33] a 10-year initiative to promote the development and implementation of HIT (see Figure 1).

The Framework identified three interrelated core strategies for pursuing these objectives: (1) promoting EHR adoption by clinicians; (2) supporting the creation of Regional Healthcare Information Organizations ("RHIOs") and (3) facilitating interoperability on the national scale through the creation of a National Health Information Network (NHIN).

The Framework recognized the importance of the EHR as the fundamental building block for improving healthcare. It also called for a National Health Information Network. To advance work on the network, ONCHIT issued a request for information (RFI), inviting responses describing a plan for creating and sustaining the collective array of components necessary to facilitate nationwide interoperability.[34] The U.S Department of Health and Human Services, released the report, "*Summary of the Nationwide Health Information Network Request for Information Responses,*" summarizing the RFI responses on how the development of an interoperable, nationwide health information network should proceed. Key elements of the responses include the following:

- Decentralized architecture built using the Internet and other existing networks;

- Open, non-proprietary standards for data;

- Technical and policy standards to guide all participation;

- Safeguards to protect the privacy of personal health information;

Figure 1: Framework for Strategic Action

1 Inform Clinical Practice	2 Interconnect Clinicians	3 Personalize Care	4 Improve Population Health
• Incentivize EHR adoption	• Foster regional collaborations	• Encourage use of PHRs	• Unify public health surveillance architectures
• Reduce risk of EHR Investment	• Develop a national health information network	• Enhance informed consumer choice	• Streamline quality and health status monitoring
• Promote EHR diffusion in rural and underserved areas	• Coordinate federal health information systems	• Promote use of telehealth systems	• Accelerate research and dissemination of evidence

• Incentives required to increase adoption;

• Patient identification based on standard methodologies but without a mandated national unique patient identifier; and

• "Record locator services" that are regionally situated, as new infrastructure components.

In January 2005, HHS Secretary Leavitt announced efforts to express a clear vision of HIT that conveys the benefits to patients, providers and payers, convening a national collaboration to further develop, set and certify HIT standards and outcomes for interoperability, privacy and data exchange, and realizing the near-term benefits of HIT in the focused areas of adverse drug-incident reporting, e-prescribing, lab and claims-sharing data, clinic registrations and insurance forms.[35] The Secretary chairs a 16-member federal advisory commission on HIT called the American Health Information Community (AHIC).[36] AHIC Commissioners, announced in September 2005, held their first meeting in October 2005. HHS has also issued Requests for Proposals for architecture and design of a web-based National Health Information Network (NHIN), privacy and security assessment and solutions, prototype for harmonizing standards, and evaluation criteria of electronic health records.[37] All contracts have been awarded to public-private groups that will accelerate the adoption of HIT and the secure portability of health information across the United States.[38] Following in November 2005, HHS announced an agreement with the Southern Governor's Association and the State of Louisiana Department of Health and Hospitals to plan and promote an infrastructure that supports interoperable healthcare data exchange in the Gulf Coast regions affected by recent hurricanes.[39]

(b) Centers for Medicare and Medicaid Services

The Centers for Medicare and Medicaid Services (CMS) has a number of initiatives underway that are designed to support the adoption of HIT, including, but not limited to the Doctor's Office Quality-Information Technology (DOQ-IT) program; the upcoming Medicare Management Performance Demonstration (a "pay-for-performance" demonstration program which will provide funds to encourage physicians to adopt information technologies and evidence-based outcome measures to promote continuity of care, help stabilize medical conditions, and reduce

adverse health outcomes such as adverse drug interactions); and the Medicare Health Support Program (demonstration program for chronic care and disease management which is expected to leverage the use of IT within the healthcare system). In 2006, the prescription drug benefit begins, in which projections show that approximately 39 million eligible Medicare beneficiaries will participate. This will grow U.S. prescription-drug spending from 2 percent of $233 billion to 28 percent of $249 billion.[40]

The Medicaid Information Technology Architecture (MITA), sponsored by the Centers for Medicare and Medicaid Services (CMS), is a new initiative that is establishing national guidelines for interoperable systems unique to Medicaid programs, providing a national framework to support improved systems development and healthcare management for the Medicaid enterprise. CMS has identified the following MITA goals[41]:

• Develop seamless and integrated systems that effectively communicate, achieving common Medicaid goals through interoperability and standards;

• Promote an environment that supports flexibility, adaptability, and rapid response to changes in programs and technology;

• Promote an enterprise that supports enabling technologies aligned with Medicaid business processes and technologies;

• Provide data that is timely, accurate, usable, and easily accessible to support analysis and decision making for healthcare management and program administration;

• Provide performance measurement for accountability and planning; and

• Coordinate with Public Heath and other partners and integrate health outcomes within the Medicaid community.

(c) Agency for Healthcare Research and Quality

In October, 2004, the Agency for Healthcare Research and Quality (AHRQ) announced a multiyear $139 million program to drive adoption of health information technology.[42] Awards were spread

across 38 states, targeting hospitals, healthcare systems, regional health information networks and communities. Five-year contracts totaling $1 million per year went to five states[43] to help them develop statewide HIE networks.

To support AHRQ's grantees and other federal partners, the AHRQ National Resource Center for Health Information Technology was also launched. The National Resource Center serves as a repository for best practices and disseminates needed tools to help providers explore the adoption and use of HIT.[44] Led by the National Opinion Research Center (NORC) at the University of Chicago and a unique partnership of organizations—including the *e*Health Initiative Foundation, the Center for Information Technology Leadership at Partners HealthCare System, Indiana University's Regenstrief Institute, the Vanderbilt Center for Better Health, and the Computer Sciences Corporation—the National Resource Center will support AHRQ grant and contract awardees that are exploring the potential of HIT to help reduce medication errors; increase sharing of health information between providers, laboratories, pharmacies and patients; ensure safer patient transitions between healthcare settings; and reduce duplicative and unnecessary testing.

(d) Centers for Disease Control

In September 2004, the Centers for Disease Control and Prevention announced the BioSense Program, a national initiative designed to enhance the nation's capability to rapidly detect, quantify and localize public health emergencies, particularly biologic terrorism, by accessing and analyzing health data. This program will establish near real-time electronic transmission of data to local, state, and federal public health agencies from national, regional, and local health data sources.

(e) Department of Veterans Affairs

The Veterans Health Administration within the Department of Veterans Affairs (VA) has built what is widely recognized, by the IOM among others, as "one of the largest and most sophisticated health information systems in the nation." The system, currently known as VistA®, was initiated in 1985, and it is now going through a complete systemic upgrade, called Health*e*Vet. VistA® reaches all 1,320 sites of

care in the large VHA system, serving 4.1 million consumers annually in a $22 billion health system that includes 174 medical centers and employs 180,000 healthcare staff. Access to complete patient information has been found to greatly reduce medical errors and facilitate patient adherence to chronic condition care protocols.[45] The VA is now exploring ways in which private sector providers can access and implement the VistA® system.

Congress

The Medicare Prescription Drug, Improvement and Modernization Act of 2003, now in the implementation stage, included several provisions designed to improve the quality, safety and efficiency of healthcare through IT. The requirements include standards for electronic prescribing, the creation of a demonstration program for pay for performance that includes elements of IT, grants to physicians for electronic prescription programs, and a chronic care improvement demonstration program that includes elements related to IT.

Over the past few months, members of the Senate and House have introduced various health information technology bills to authorize standards-setting bodies, codify the role of the federal government, provide grants for regional health information networks and initiatives, provide incentives for providers and clinicians who improve quality using IT, implement certification programs for healthcare software applications, and address laws that may impede the adoption of IT. One of these bills, *The Wired for Health Care Quality Act of 2005*, was approved by the Senate Nov. 18, 2005, while a revised version of another bill, *The Medicare Value Purchasing Act of 2005*, was placed into a budget bill passed by the Senate Nov. 3, 2005, as part of *The Deficit Reduction Omnibus Reconciliation Act of 2005*. These bills face additional procedural steps if they are to be enacted and enactment is not assured. Nevertheless, the forward momentum of these bills is a positive sign. Appendix A represents a summary of recent federal legislative activity.

There is an increase in the demand for efforts that would improve the quality and efficiency of healthcare. As noted in Appendix A, in the pending bills, the House and Senate have introduced pay for

performance or incentives legislation. In March 2005, the Medicare Payment Advisory Commission (MedPAC) recommended to Congress that Medicare vary payment to healthcare providers and organizations based on the quality of care they provide. The National Quality Forum (NQF) is developing consensus on a set of ambulatory measures. And one group, the Ambulatory Care Quality Alliance (AQA), has gained consensus on a "starter set" of 26 clinical performance measures for the ambulatory care setting, all of which are expected to be a subset of the NQF ambulatory measures.[46]

The States

While federal leadership is important, it must be integrated with efforts at the state and local levels. State legislatures and local governments play a critical role in overall leadership as regulators, safety net providers, and payers. Several state governments are beginning to become engaged in the use of HIT to support policy goals. And whereas most HIT legislation previously focused on removing barriers to electronic transmission of data with regard to access, privacy and confidentiality of EHR, more and more state legislative agendas include HIT initiatives such as disease management, telemedicine, adverse incident reporting, statewide EHR, and computerized physician order entry (CPOE).

Clearly, there is no standard solution that is widely accepted. Indeed, early experience suggests that successful efforts have different starting points, different initial approaches, different emphases, different organizational forms, and different evolutionary paths toward a common objective of a secure and ubiquitous information exchange.[47] It is likely that as states begin to recognize the opportunities presented by

HIT, more state leadership and initiatives will emerge (sees Appendix B for a sampling of some of existing state and regional HIE initiatives).

Common principles for addressing each of these challenges are beginning to emerge, but in many areas there is not yet consensus. The following summarizes some of the themes that are beginning to emerge.

(a) Financing and Sustainability. In order to finance and sustain emerging health information organizations and initiatives, the value that accrues to each stakeholder in the system needs to be quantified, communicated, and recognized. Models are emerging that will assist in this process. Research indicates that a wide range of stakeholders benefit from HIE including healthcare employers and purchasers, health plans, hospitals, laboratories, practicing clinicians, researchers, and public health. Translating this benefit into a sustainable business model will require collaboration and the creation of vehicles to facilitate both value and cost transfer. Work is now underway to further define value and cost, and to develop replicable models that can be customized for each region's or community's use. In addition, it is clear that in some communities, upfront funding will be required, regardless of the sustainability model used. Grant and loan programs will play a critical role in supporting upfront capital needs.

(b) Organization and Governance. Many believe that health information organizations and initiatives should be led by a "neutral" and trusted governing body which includes the many diverse stakeholders in the system, and the governance structures of those initiatives that have been successful to date reflect this attribute. Given the fragmented and highly competitive nature of our healthcare system, building trust among these diverse entities has been difficult, and requires a great deal of process and attention. There appears to be consensus that a non-profit organization is best suited to play the convening role.

(c) Legal Issues. A wide range of legal issues beyond organization and governance need to be addressed, including those related to user and vendor agreements, fraud and abuse, antitrust, liability and malpractice, data uses and rights, and compliance with HIPAA and state privacy laws. Based on the research performed to date, these legal issues do not present

barriers; however, they should be addressed as the work of the health information initiative unfolds.

(d) Engaging Clinical Stakeholders. The role of practicing clinicians in any HIE initiative is critical. A majority of healthcare is delivered by small physician practices. Inclusion and engagement of the active participation of practicing clinicians in both the governance and the organization of the health information initiative, upfront, will help pave the way for success. The value that is derived from the mobilization of data across organizations to support patient care will not be realized unless practicing clinicians actually use the system to access results, reminders, and other information related to the patient.

(e) Technical Aspects. A number of issues need to be agreed upon as part of the technical realm of sharing data and information. These include: functionality of the system, technical architecture model, methods for accurately linking patient data, security aspects including patient and provider authentication, and others. Fortunately many models are now emerging to address these issues. In fact, Connecting for Health (http://www.connectingforhealth.org) is in the process of developing standards, methodologies and implementation guides to support both the technical aspects of HIE, addressing issues such as patient and provider authentication, a record locator service, and effective technical architectures to support responsible implementation and access. These standards and guides will be available and in the public domain in the fall of 2005.

Connecting for Health: a public-private collaborative launched and supported financially by the Markle Foundation (and in its second phase, also by the Robert Wood Johnson Foundation) demonstrates significant leadership in accelerating the use of HIT and HIE and has engaged public and private sector stakeholders from every sector of healthcare to develop a Roadmap for Electronic Connectivity, detailing a series of recommendations for the practical strategies and specific actions to be taken over the next one to three years that will bring the U.S. healthcare system measurably closer to an electronic, interoperable healthcare system.

D. Leadership in the Private Sector – Quality Initiatives

There are many who believe that ultimately, the private sector will play a considerable role in moving the nation towards an electronic healthcare system. A number of national, regional and local initiatives and "market experiments" or "learning laboratories" are now underway and are charting new paths for improving healthcare quality enabled by HIT and HIE. Healthcare quality improved markedly in many key areas in 2004, but only about 21.5 percent of the industry now reports publicly on its performance, according to NCQA's annual *State of Health Care Quality*, 2005. The following is a representation of private sector programs, some offering incentives for the purchase or usage of HIT, which have emerged across the nation, from health plans, business coalitions and large employer-purchasers.

Bridges to Excellence

Bridges to Excellence (BTE), a pay for performance initiative, was launched in 2003 to promote and reward higher quality patient care. The funding for this program is provided by employers, the Robert Wood Johnson Foundation and the Commonwealth Fund. Bridges to Excellence (BTE) is composed of physicians, health plans and several of the nation's largest employers, including General Electric, Procter & Gamble, Verizon, UPS and Ford.

Bridges to Excellence (www.bridgestoexcellence.org) is comprised of three individual programs: 1) Physician Office Link (POL), 2) Diabetes Care Link (DCL), and 3) Cardiac Care Link (CCL). BTE is currently in practice in the following market areas: Cincinnati (DCL), Louisville (DCL), Massachusetts (POL, DCL), and Albany/Schenectady (POL, DCL, CCL); several other markets have committed to deploy one or more of the BTE programs in 2005 due to the leadership provided by United Health Group, the National Business Coalition on Health, and the Blue Cross and Blue Shield Association. The programs are targeted towards primary care physicians, endocrinologists, cardiologists, and neurologists who have been identified by BTE as eligible based on participating health plan information and whether they pass the

National Committee for Quality Assurance's (NCQA) performance assessment criteria. Each program utilizes NCQA's guidelines for each specific disease.

The Leapfrog Group

The Leapfrog Group, which is composed of more than 170 companies and organizations that buy healthcare, is making strides in improving accountability in the hospital environment. Their overall goal is to reduce medical mistakes and improve the quality and safety of healthcare and to reward physicians and hospitals for improving the safety, quality, and affordability of healthcare. The Leapfrog Group (www.leapfroggroup.org) has implemented the Leapfrog Hospital Rewards Program (LHRP), a pay-for-performance program to recognize and reward hospitals for their performance in both the quality and efficiency of inpatient care. The LHRP can be licensed and implemented by private healthcare purchasers - employers, healthcare coalitions, and health plans - to reward hospitals for performance. These rewards include bonus payments to hospitals, higher reimbursement rates from health plan payers, public recognition, and/or increased patient market share.

The National Committee for Quality Assurance

The National Committee for Quality Assurance (www.ncqa.org) is an independent, 501(c) (3) non-profit organization whose mission is to improve healthcare quality everywhere. They aim to improve quality in three ways: 1) accreditation of managed care organizations; 2) development of Health Plan Employer Data and Information Set (HEDIS); and 3) collaboration with AHRQ for a member satisfaction survey of managed care plans.

WellPoint Health Network

WellPoint Health Network, the nation's second largest health insurer, launched an initiative earlier this year that will provide almost 19,000 contracting network physicians in California, Georgia, Missouri and Wisconsin with $40 million worth of new technologies designed to enhance their use of CPOE and online communication. Selected physicians will have their choice, free of charge, of either a hand-held electronic prescribing unit or a fully-loaded professional grade computer and printer to facilitate on-line communication, including paperless submission of claims. WellPoint is also offering a substantial discount on the same equipment choices to all network physicians throughout the nation.

Integrated Healthcare Association

The Integrated Healthcare Association Pay for Performance (P4P) program is the country's largest physician incentive program based on quality of care with participation by six California health plans (Aetna, Blue Cross, Blue Shield, Cigna, HealthNet, and PacifiCare) with nearly seven million commercial enrollees and 45,000 doctors. Total bonuses are expected to be in the $50 million to $100 million range for the program's first year. The initiative promotes a common set of measures that evaluate clinical quality of care for preventive services - such as breast cancer screening - plus treatment of chronic care conditions such as diabetes and asthma. Patient experience is evaluated by asking patients who saw their doctors during the year for their views on factors such as communication with their doctor and access to specialists. Medical groups were rated on their investment and adoption of new IT to support patient care. Each participating health plan determines its own methodology for determining bonus payments to medical groups using the common P4P measurement set.

E. A Closer Look at Emerging Health Information Initiatives

eHI's Connecting Communities for Better Health Program is providing both seed funding and technical support to communities across the country who are engaged in the development of health information networks and HIE. This $11 million program, currently conducted under a cooperative agreement with the Health Resources and Services Administration (HRSA), is bringing together more than 100 health information organizations and initiatives across the country to develop and disseminate strategies and tools to tackle the financial, organizational, legal, clinical and technical challenges related to mobilizing data electronically across providers and other

healthcare stakeholders to support improvements in care delivery and population health. The Connecting Communities program is also providing seed funding to community-based initiatives involved in HIE, providing nine such awards in July 2004, and initiated new funding criteria for Phase II in September 2005.

eHealth Initiative recently completed the *2005 Second Annual Survey of State, Regional and Community-Based Health Information Exchange Initiatives and Organizations*—a representation of more than 100 exchange efforts across the country who are actively pursuing the goal of connectivity to support patient care.[48] To put the results in context, it's important to note the results of last year's survey, which showed that communities had not yet implemented their technical approaches and were focused on developing organizational structures and implementation plans to operationalize their initiatives. Organizations were just getting started and struggling with "should we do this?" and "how can we do this?"

Results from this year's survey demonstrate that communities are no longer talking about doing it - they *are* doing it. While last year's results focused on plans for implementation, this year's results demonstrate major achievements in organization and functionality. Sixty-five organizations, or 60 percent of all respondents, identified themselves as "advanced" or well underway with implementation, and in many cases,

fully operational. While many of the early stage initiatives are still getting started, it is clear that they are learning from their more advanced counterparts and demonstrating knowledge of emerging common principles related to the organizational, legal, financial and technical aspects of HIE.

First among the findings is that technical challenges are fading and the number of HIE efforts now actively exchanging data has tripled over the past year. While the number one challenge remains funding, there are many examples of HIE efforts developing sustainable models which deliver value to hospitals, physician practices, health plans and purchasers. And in 2005, the use of multi-stakeholder, inclusive governance structures is increasingly becoming the norm.

In conclusion, there is a great deal of momentum for HIT and HIE across the United States. Arizona leaders will likely experience some of the same challenges that are experienced by others. Through dialogue and collaboration among the many diverse stakeholders in Arizona, supported by lessons now being learned in different parts of the country, the region has the opportunity to achieve significant gains in quality, safety and efficiency through the effective and appropriate use of information technology and connectivity and interoperability across its many healthcare organizations.

II. Overview of Arizona

A. Background

Planning efforts for HIT and HIE are beginning to take shape, and the state of Arizona is well-positioned to provide leadership in setting the direction and establishing momentum. Arizona has 76 percent of its population residing in Maricopa and Pima counties, providing opportunities for developing regional and state-level data exchange. However, with each of the other counties containing less than 4 percent of the state's population, there are numerous challenges with respect to access to care and involvement of rural health centers and the Native American community.[49]

Arizona has the second greatest overall healthcare improvement with a 5.1 percent increase from 2003 to 2004, and was ranked 23rd in the nation for health outcomes in 2004, up from 32nd in 2003.[50] Strengths for the state include strong support for public health with 15.5 percent of the state health budget allocated for public health, doubling from $67 to $128 per person from 2003 to 2004 and achieving a rank of 4th with respect to both percent of dollars for public health and per capita public health spending.[51] Arizona also demonstrated a low rate of cancer deaths at 184.6 deaths per 100,000 population, and low rate of deaths from cardiovascular disease at 293.9 deaths per 100,000 population in 2004.[52]

Challenges in Arizona include low access to adequate prenatal care with only 68.7 percent of pregnant women receiving adequate prenatal care (ranked 43rd), and a high percentage of children in poverty at

19.1 percent of persons under age 18 (ranked 37th), although this has improved from 22.3 percent in 2003. Arizona ranked 30th for the combined measures of risk factors and 21st for the combined measures of outcomes, indicating the state's relative healthiness may remain steady or decline in future years if the risk factors are not addressed. Health disparities are high in Arizona, as evidenced by the 51.8 percent of American Indian women who received adequate prenatal care compared to 77.7 percent for Asian/Pacific Islander women, 69.6 for white women and 69.1 percent for black women.[53] The uninsured rate of 17 percent was similar to the national average of 16 percent; however, there is a high disparity in the distribution by race with 52 percent of Arizona's Hispanic population uninsured compared with 30 percent of the U.S. average for persons of Hispanic origin.[54] Arizona's population of 5.6 million as of 2004 pegs 40 percent under 200 percent the federal poverty level, compared to the U.S. average of 36 percent. The unemployment rate of 5.0 percent was similar to the U.S. average of 5.1 percent in September 2005.[55]

Arizona's concentration of physicians in small and medium-sized practices also poses a challenge to extensive adoption of HIT and HIE across the state. Approximately 1,460 of Arizona's 4,000 physicians practice in primary care practices with 92 percent consisting of one to three physicians and 98 percent with fewer than eight physicians.[56] However, Health Services Advisory Group (HSAG), the Medicare Quality Improvement Organization (QIO) of Arizona, notes that HIT has been gaining strong momentum in Arizona among physician practices. Eighty-seven percent of physician practices have high-speed Internet access, 13.5 percent are currently using electronic health records (EHRs), and 25 percent are ready to purchase an EHR within the next two years.[57]

The need for a coordinated strategy for health information exchange in Arizona is growing rapidly, with more than 29 EHR vendors active in the Arizona market.[58]

B. Examples of Arizona Statewide and Regional HIT and HIE Initiatives

Arizona Department of Health Services Electronic Disease Surveillance Program

The goal of the Arizona Department of Health Services Electronic Disease Surveillance Program is to enhance public health's ability to detect and respond to suspected bioterrorism events, outbreaks of infectious diseases, and other public health emergencies. The program works with local health departments, other office areas, the Office of Infectious Disease Services and the Office of Hospital and Community Emergency Preparedness and Response to:

• Develop and implement an electronic disease surveillance system;

• Increase epidemiology capacity statewide;

• Ensure the ability to receive, triage and appropriately respond to urgent public health reports 24 hours a day, seven days a week;

 • Plan and begin development of prediagnostic or syndromic surveillance systems for early detection of outbreaks and bioterrorism events; and

• Coordinate the planning and development of an Early Warning Infectious Disease Surveillance System in conjunction with the Office of Border Health, and our Mexican public health partners.

The Arizona Department of Health Services Electronic Disease Surveillance Program includes two aspects: Secure Integrated Response Electronic Notification System (SIREN) and Medical Electronic Disease Surveillance and Intelligence System (MEDSIS).

SIREN is a system, based upon national standards for information sharing, to support disease surveillance and public health response efforts statewide by providing a secure gateway to public health systems, alerting capabilities, Geographical Information Systems (GIS) visualization, secure email communications, secure data messaging and translation services, role-based public health directory, and failover capacities. SIREN is web-based and is being used as part of the daily workings and to support the emergency response needs of public health for the State of Arizona. The SIREN System represents a single access point for statewide public health disease surveillance, response, and alerting information and communications.

MEDSIS is a web-based system in development in partnership with local health departments to enhance disease surveillance and detect bioterrorism events in Arizona. The statewide system will be hosted and supported by the Arizona Department of Health Services for use by local health departments for disease surveillance and by individuals and institutions responsible for reporting communicable diseases. Electronic Laboratory Reporting (ELR) from commercial clinical and hospital laboratories will also be available through web entry or daily electronic transmission of laboratory test and result information to MEDSIS, eliminating paper reporting from these laboratories. MEDSIS is integrated into the SIREN System and will take advantage of SIREN capabilities described above. The first version of MEDSIS is being deployed by 14 county health departments, with a final completion date in January 2006. A second version with additional enhancements and functionality will begin development in December 2005 and is scheduled to be deployed in the summer of 2006.[59]

Arizona Health Care Cost Containment System—Arizona's Medicaid Program

The Arizona Health Care Cost Containment System (AHCCCS) is Arizona's Medicaid program providing coverage to more than 1.3 million members, comprising approximately 18 percent of Arizona's total population. AHCCCS's mission and vision is to reach across Arizona to provide comprehensive, quality healthcare for those in need by shaping tomorrow's managed healthcare from today's experience, quality and innovation. It is the first statewide Medicaid managed care system in the nation. AHCCCS was

created as a partnership between the state and private and public managed care health plans that mainstreamed Medicaid recipients into private physician offices to defray the cost of indigent healthcare in the state. It was the first Medicaid program to rely on health plans to deliver acute care services to both Medicaid and state-funded populations.[60]

(a) AHCCCS Five-Year Strategic Plan FY 2006-2010

The AHCCCS Strategic Plan focuses on five strategic issues: 1) healthcare costs, 2) healthcare quality, 3) the uninsured, 4) AHCCCS infrastructure, and 5) collaboration and integration of healthcare programs. AHCCCS's IT initiatives fall within Strategic Issue #4: AHCCCS infrastructure, and include a goal to "improve AHCCCS information systems and decision support capabilities". These goals are also in line with the CMS Medicaid Information Technology Architecture Initiative (MITA). Identified AHCCCS strategies to meet this goal are to:

• Evaluate, acquire and install the next generation of AHCCCS software products and system architecture;

• Maximize the use of upgraded telecommunication capabilities;

• Design and implement expanded web-enabled capacity and capabilities; and

• Maximize the organization's ability to utilize data warehousing for reporting and decision-making.

AHCCCS IT Vision is a plan to replace the outdated Prepaid Medical Management Information System (PMMIS). Per the Strategic Plan, system replacement in SFY 2006 will cost $20 million to totally fund ($2,000,000 state match). This assumes a one-time cost and a 90 percent federal match and maintenance coverage within the base budget.

The AHCCCS Information Services Division faces a number of key challenges in its ongoing effort to provide effective, efficient and high quality information:

• The Prepaid Medical Management Information System (PMMIS) is 13 years old and operates on an outdated technology platform. It is becoming increasingly difficult to implement the changes necessary to accommodate ongoing programmatic changes.

• The ability to support effective and efficient decision-making is limited without a data war house/decision support system.

• Only with a well-funded technology plan will one be able to effectively support the dynamic nature of the agency. However, funds necessary to update or replace current technology are limited.

• Private enterprises are offering more competitive salaries than state agencies to individuals with IT skills. As a result, AHCCCS finds it a challenge to recruit and retain technical staff.

• Relative to these challenges, AHCCCS has a number of major IT initiatives underway. This means that any new demands will have to be prioritized among these other projects and within the constraints of limited resources.[61]

(b) Current Information Technology Projects

There are two major web technology pilot projects currently underway within AHCCCS. The first project, Health-e-Arizona is a paperless, electronic interview pilot project that provides real-time eligibility screening, offered in English, Spanish versions, and ADA-compliant versions. The pilot is a partnership between AHCCCS, DES and the Community Health Centers Collaborative Ventures and operates out of El Rio Health Center locations in Tucson, DES offices in Pima County and the AHCCCS SSI/MAO and KidsCare offices in Phoenix. The second web technology project, Provider Web Project, is a pilot project using a website that allows AHCCCS providers to verify member eligibility and enrollment electronically, providing an alternative to the telephone for providers to perform eligibility verification.

Health Services Advisory Group (HSAG) – Arizona's Medicare Quality Improvement Organization

For more than two decades, HSAG has served as the Centers for Medicare and Medicaid Services (CMS) contracted Quality Improvement Organization (QIO) in Arizona. As the QIO, HSAG works with providers to review and improve the quality of healthcare for Medicare beneficiaries statewide. HSAG promotes awareness, understanding and use of this information by working directly with beneficiaries and providers, and with intermediaries such as discharge planners, community organizations, and the media in the state.

As the QIO in Arizona, HSAG is charged with providing support to physician practices implementing EHR, spearheading the effort under the 8th Scope of Work (SOW) assigned by CMS. HSAG's objective is to increase the proportion of HIT users in physician practices by 5 to 6 percent. HSAG is recruiting 120 office practices, of which 80 percent are small to medium sized and 75 percent have not implemented HIT.[62]

HSAG employs four strategies to help Arizona providers transform the care they deliver. These four strategies are:

• Measuring and reporting performance: QIOs laid the foundation for public reporting of provider quality in the 7th Scope of Work.

• Adopting and effectively using IT: QIOs will help providers select and best use these tools to improve patient outcomes.

• Redesigning care processes: QIOs will assist the healthcare community in placing patients at the center of their own care, using strategies borrowed from other industries.

• Changing organizational culture: QIOs will work with providers to foster an environment where senior leaders orient teams to quality through specific goals and performance assessment.

Arizona Telemedicine Program

The Arizona Telemedicine Program (ATP) is a large, multidisciplinary program based at the University at Arizona that provides telemedicine services, distance learning, informatics training, and telemedicine technology assessment capabilities to communities throughout Arizona. In 1996, the Arizona State Legislature funded the ATP and mandated that it provide telemedicine services to a broad range of healthcare service users, including geographically isolated communities, Indian tribes, and Department of Corrections' rural prisons.

The ATP provides the network backbone for support of telemedicine technologies such as digital imaging and real-time videoconferencing. There are approximately 65 sites directly connected to the ATP network and an additional 85 locations are reachable through directly connected affiliate networks. The network links access points in Tucson, Phoenix, Flagstaff, Tuba City, and Window Rock in Arizona, and extends to Indian Health Service (IHS) facilities in New Mexico. The ATP also provides a dedicated broadband healthcare infrastructure that functions as a telecommunications collaborative, providing access to T-1/ATM telecommunications on a private network throughout the state on a cost-sharing basis.

ATP's e-Healthcare Arizona program provides state agencies with a vehicle for collaborating on various programs in disease prevention, public education, correctional telemedicine and, more recently, children's healthcare and home health nursing.

Arizona State Immunization Information System (ASIIS)

The Arizona State Immunization Information System (ASIIS) is a registry that captures immunization data on individuals within the state. Providers are mandated to report all immunizations administered to children from birth through 18 years of age. Immunizations are reported to the state's health department on a monthly basis. Providers have the ability to query the registry for current and historical patient immunization records. Providers can report

immunization information by any of the following methods: (1) accessing the free ASIIS web-based application; (2) submitting a paper-based reporting form by mail; and (3) interfacing data from practice management/billing vendors.

Arizona Health Information Technology Accelerator (AHITA) and Arizona Medical Associations

The Arizona Health Information Technology Accelerator (AHITA) (www.ahita.org) is non-profit organization formed in mid-2005 to bring together technologists and physicians dedicated to helping other physicians select, implement, and finance EHR. AHITA is working with Arizona DOQ-IT and medical associations, including the American Academy of Family Physicians (AAFP), American Association of Pediatrics (AAP), American College of Physicians (ACP), Arizona Osteopathic Medical Association (AOMA), and Arizona Medical Association (ArMA), to assist in education and facilitate HIT with a vendor-neutral approach. AHITA's first educational event took place Nov. 18, 2005, in Tucson.

Arizona Health Care Associations

The rapidly increasing focus on HIT in Arizona has led the state's healthcare associations to increase their involvement and education in this area. Associations such as the Arizona Rural Health Association (AzRHA), Arizona Hospital and Healthcare Association (AzHHA), and the Hospital Council of Southern Arizona have all dedicated specific meeting agendas or held day-long forums regarding HIT. The Arizona Rural Health Association held a forum on the topic of "Health Information Technology in Rural Arizona: A Tool to Improve Healthcare Workforce Recruitment and Retention, Quality and Education", Nov. 14, 2005.

Southern Arizona Uninsured Coalition

The Southern Arizona Uninsured Coalition, a division of the Pima Community Access Program ("Coalition") is a partnership among southern Arizona hospitals, safety net providers, county governments, area businesses, and the State of Arizona to more efficiently provide care for the uninsured and under-insured, and to improve the efficiencies and quality of the healthcare delivery system for all individuals and patients. The Coalition has two fundamental objectives:

1. To have all area health providers utilize a common electronic eligibility screening tool to assist in determining available assistance or coverage for uninsured or under-insured individuals. Individuals screened may be found eligible for AHCCCS, KidsCare, commercial insurance coverage, assistance from drug manufacturers, or through their employer's participation in Health Care Group (lower cost insurance for small employers).

2. Develop and utilize a clinical data exchange system including a "continuity of care" (CCR) record system with the eventual development and implementation of a more expansive regional health information organization (RHIO) whereby all area health providers can have access to a clinical data exchange for all patients (not just uninsured). The data exchange also will contribute in region-wide disaster/bio-terrorism preparedness, and public health surveillance and epidemic management.

Arizona HealthQuery (AZHQ)

AZHQ is an integrated database of medical information from public and private data partners in Maricopa County. Currently sponsored by Arizona State University and St. Luke's Health Initiatives (SLHI), its purpose is to monitor the performance of the local healthcare system in terms of access, quality and cost, and to conduct research that improves system performance over time.

Other Arizona Initiatives

A list of Arizona HIT and exchange initiatives that were revealed during the interview process are described in Appendix D. This list is based on the sample of organizations and individuals interviewed (see Appendix C) and is not inclusive of all Arizona HIT and HIE initiatives.

C. "What We Heard" from Arizona Leaders

In an effort to solicit input from leaders in Arizona's healthcare industry, representatives from government, hospitals, physicians groups, consumer groups, health plans, employers, and academic medical centers participated in one-hour phone interviews (see Appendix C). The project management team interviewed these leaders about the current status of HIT implementation and exchange initiatives in Arizona, HIT's potential to address the state's most pressing healthcare challenges and what, if any, issues would need to be addressed or approaches that would need to be taken to move the state towards broader adoption and use of health information technology and exchange (see Figure 2). The results of these interviews are summarized in the next section.

Figure 2: Key Barriers to Health Information Exchange in Arizona
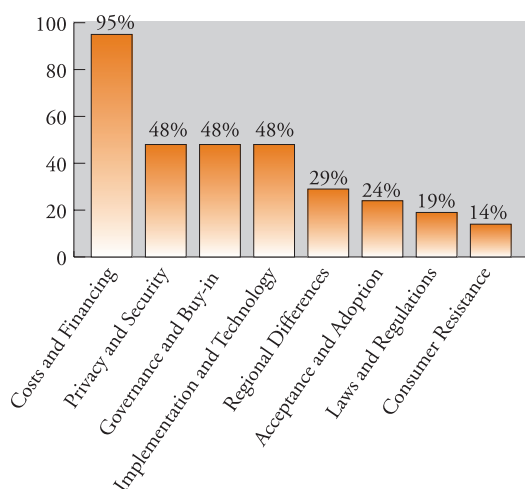
Establishing Leadership and Vision – Role of the State Government

"The State can provide a forum, structure, some leadership, and some funding."

"The Governor's Office can do a great job in leading this initiative."

Most leaders recommended that the state serve as a coordinating body, provide leadership and guidance, and help drive collaboration. The state could assume key roles in areas such as providing funding, aligning financial incentives, providing technical infrastructure, driving progressive policy, and promoting interoperability standards.

The leaders highlighted the need in the near future for the transition from the Executive Order and state-led initiative to the establishment of a more formal public-private collaboration effort. Arizona was cited as having a good track record in public-private collaboration, and creation of this collaboration entity will help prevent a perception of bias that a group is controlling the agenda and outcomes, which can occur when there is a sole convener and selector of team members.

Defining Project Goals and Approach

"What are the problems that we're trying to solve and the prioritization of problems and their solutions?"

There was confusion among the participants related to scope and approach of the project and the definition of an e-health infrastructure across the state. Some healthcare leaders felt the presently stated goal was too broad-based and that interim goals and tangible benefits would have to be articulated to meet the longer-term vision. Leaders stressed a sense of urgency in establishing project goals and principles and that they are looking to the *Roadmap* to provide clarity and structure.

There are a number of competing ideas for the best approach for a statewide e-health infrastructure. Perspectives ranged from focusing the initiative on specific patient populations (e.g. individuals in county jail and state prison systems or AHCCCS patients) to connecting a single information type (e.g. medications list, labs, visit history) across the entire state. The participants did not expect a single product or solution for individual providers across the state and stressed a plan to accommodate a variety of solutions in the marketplace so that the state is not dictating to any provider group which product to use.

We asked the leaders whether they favored a statewide or regional approach to foster health information exchange in Arizona. About half of the respondents favored a statewide approach, citing that 76 percent of the population resided in two counties and that a pilot project could be easily extended statewide; the other half recommended a regional approach. The most overwhelming support was to follow developing national efforts that could be implemented at a regional or local level without additional re-work or re-investment as the national agenda evolves.

Resolving Financial Barriers

"Recognize that given the demands of state and federal government that reducing the cost of healthcare has to be of the highest priority, it will require a great deal of focus and money to team up the private and public sector to have the type of HIT impacts that will reduce costs and improve quality."

The leaders interviewed unanimously identified cost and financing challenges as the primary challenge towards implementing HIT and HIE. The impact of declining reimbursement rates and the large under- and uninsured population in Arizona is further compounded by continually rising healthcare costs. Many leaders called upon the state to leverage its role in AHCCCS and as an employer to drive the development of incentives related to HIT and HIE. Many participants recommended that the funding sources should be tied to those institutions and organizations that stand to benefit the most financially from the HIT projects that are identified. Leaders are looking

for additional insight with regard to the national agenda and whether additional funding and incentives will be established in the near future.

Leaders of HIT initiatives that are currently underway stressed that these projects cannot be based solely upon grant money, identifying the need for financing beyond the technology components for resources and staffing to help drive adoption, practice change, and provide ongoing support. Smaller institutions and physician practices are even more challenged with respect to financing and infrastructure. Moreover, organizations that have already invested heavily in HIT expressed concern that the state initiatives do not penalize early adopters and that their investments can be leveraged as part of the long term vision.

Addressing Privacy and Security Concerns

"Information is so much easier to access when it's on the Internet, but we do not want people to be able to have access to data that would go into hiring decisions related to cost of employees."

Next to financing, privacy and security concerns were the most cited challenge to HIT and HIE adoption in Arizona, particularly by consumer groups and employers. Many leaders expected that there would be consumer concerns related to profiling of individuals by employers in hiring decisions based upon data available via health information exchange. Leaders cited a need to promote the benefits of HIT and HIE to provide a balance for concerns regarding privacy. Specific federal and state laws addressing privacy are discussed in Section D below, as well as in Appendix E.

Balancing Needs of Key Sectors and Stakeholders

"Arizona is a state that has a fair amount of land mass in rural communities – the solutions that work in an urban environment may not be solutions that work in a rural environment, in part due to the lack of technological infrastructure and also the ability of these communities to support investments."

Leaders discussed the need to develop a plan that addresses the needs of the varied sectors and stakeholders across the state, particularly small independent physician practices, rural providers, senior citizens, and the Native American communities. The lack of availability of IT infrastructure in rural regions of the state was discussed by many participants. Other groups in more rural settings indicated the high cost for network bandwidth and Internet connectivity, up to 30 percent more expensive in some settings compared to their urban counterparts. Indian Health Service and tribal health systems were cited as important stakeholders during this effort. Other leaders raised the issue of reaching "snowbirds" and other people temporarily in the state (military service members and vacationers).

Involving Consumers

"It is absolutely essential that an Arizona e-health initiative include the consumer as part of the basic system design…talk about seamlessness, not IT - those are the issues that are important to the general population."

The leaders interviewed believed that involving consumers is critical. They noted that Arizona is fairly progressive in terms of using the Internet and performing tasks online and that the state should leverage this by implementing HIT as a "consumer product." To ensure buy-in, consumers should be integrated into existing and planned committees and task forces. Key topics raised for consumer input included addressing consumer access of e-health information, deciding whether consumers should have the ability to "opt out" if they do not wish to participate in HIE initiatives, and ensuring the confidentiality of e-health information.

Supporting Collaboration

"Applaud the Governor's leadership in enabling the creation of this Roadmap, and focusing the state's attention on something that is very much needed."

The leaders interviewed expressed unanimous support for the Governor's Office efforts to increase the visibility of HIT and HIE and establishing it as a priority

for Arizona. The leaders demonstrated a willingness to participate in regional and statewide planning efforts and expressed enthusiasm for the increased visibility on HIT in the state. This enthusiasm is cautiously optimistic; given the current broad scope and undefined nature of the project, the leaders are hoping for a plan that provides a realistic framework that can adapt to the needs of the various types of organizations and stakeholders involved.

D. Arizona *e*-Health Legal Analysis: The Challenges Ahead

A variety of federal and state statutes and regulations will affect the formation of an e-health information exchange in Arizona. These include federal and state laws on medical record confidentiality, consumer rights, medical record administration, telemedicine, electronic signatures, fraud and abuse, and antitrust. The legal issues involved in forming an e-health information exchange are numerous and the summary in Appendix E provides a brief description of the issues that must be tackled in Arizona.

One of the most profound legal challenges Arizona will face is to ensure that the health information included in an e-health information exchange is confidential and secure. In order for an e-health information exchange to be successful, consumers must trust that their health information will be kept confidential. As DHHS has stated, "the entire health delivery system is built upon the willingness of individuals to share the most intimate details of their lives with their health providers."[63] Rigorous confidentiality protection for the health information handled by an e-health information exchange thus is essential to the long-term success of the mission. But addressing confidentiality will not be a simple task: As in many states, healthcare providers and health plans in Arizona must comply with a plethora of federal and state laws governing the confidentiality of health information. Most of these laws were written at a time when e-health information exchange and regional health information organizations were a futuristic goal; the application of those laws to *e*-health information occasionally poses a significant challenge. Some of the federal and state laws identified in Appendix E will pose real challenges to an efficient

and workable e-health information exchange program in Arizona. Resolving these challenges will involve difficult policy decisions and may involve asking the Arizona Legislature or relevant agencies to amend Arizona laws and regulations to facilitate the e-health information exchange efforts.

The resolution of many of these challenges will depend greatly on how the e-health information exchange is structured, the type of e-health information to be included, the types of participants in the exchange, and the purposes for which the exchange is accessed by the participants. For example, many of these issues will be resolved differently if the exchange involves only limited information, such as medication information or a Continuity of Care Record, versus the exchange of complete electronic health records by an interoperable electronic health record system. The e-health information exchange thus will need to make these decisions before many of the legal and policy challenges can be satisfactorily addressed.

The following discussion identifies three of the most significant challenges the e-health information exchange will face: how the e-health information exchange will address consumer control over their own health information; how the e-health information exchange will handle "special" health information that has greater confidentiality protection; and how the e-health information exchange will handle minors' health information.

Challenge 1: How will the *e*-health information exchange address consumer control over their health information?

e-health information exchanges across the country face the difficult task of determining how much control the individual consumer will have over his or her health information in the e-health information exchange. On the one hand, consumers legitimately want control over their own health information and want the right to choose whether to participate in a health information exchange. On the other hand, seeking consumer consent before including health

information in the e-health information exchange may mean that an individual consumer may not have the opportunity to consider including his or her information before that information is needed. For example, the person may be in a car accident and treated at an emergency department before the person has the opportunity to "opt in" to the system, so that person's information will not be available electronically to the emergency care providers. In addition, seeking consent of consumers will be an administratively difficult task and may pose substantial expense in implementing the system. Finally, permitting consumers control over participation will diminish the effectiveness of the information exchange in addressing important public concerns, such as using the information in the exchange for bioterrorism surveillance or to alert healthcare providers and public health officials to the beginning of a potential pandemic.

There is no easy answer to this challenge. Moreover, the balance between these positions may change, depending on what type of information is included in the exchange and for what purposes the information will be available. For example, most consumers may be willing to include medication information in the exchange without consent, but want the right to consent if a full-blown interoperable electronic health record is created. Similarly, most consumers may be willing to participate in the system if it is accessed only by physicians and hospitals for treatment purposes, versus some of the other public purposes such as disease surveillance and research.

Weighing the public policy issues above, the e-health information exchange has the following options:

- Seek consumer consent or "opt in" to include their health information in the e-health exchange.

- Provide consumers the right to "opt out" of having their health information in the e-health exchange.

- Include all consumers' health information in the ehealth exchange, with rigorous confidentiality and security protection in place.

Challenge 2: How will the e-health information exchange handle "special" health information that has greater confidentiality protection?

As discussed in detail in Appendix E, some types of health information have greater confidentiality protections than are found in the federal HIPAA Privacy Rule, which forms the federal "floor" of confidentiality protection. For example, federal and Arizona laws related to communicable disease, genetic testing, mental health and alcohol and substance abuse treatment information permit fewer types of uses and disclosures of health information than does the HIPAA Privacy Rule. One of the most challenging decisions facing the e-health information exchange will be how to handle this "special" information. The e-health information exchange has a variety of options:

• The e-health information exchange could exclude communicable disease, genetic testing, mental health and alcohol and substance abuse treatment information to provide greater confidentiality protection for that information. However, the exchange must examine whether this will be workable, given that this information (particularly communicable disease information) is integrated throughout medical information held by providers. Moreover, segregating that information means that it may not be available to healthcare providers, which may compromise the quality of care provided to the consumer.

• The *e*-health information exchange could include some sensitive information, but exclude others that have the greatest restrictions on use and disclosure. For example, the e-health information exchange could include mental health information and communicable disease information (both of which may be disclosed for treatment, payment, quality improvement, research and public health surveillance), but exclude alcohol and drug abuse treatment information held by federally-assisted substance abuse treatment programs and genetic testing information (which may not be disclosed for these purposes without consumer consent). This option may be workable, if providers holding

genetic testing information and substance abuse treatment information can store that information separately from the e-health information exchange.

• The e-health information exchange could include the special information, but restrict the use of all information in the exchange to comply with the most restrictive laws. For example, the laws protecting special health information all permit disclosure of the information with appropriate consent. The exchange thus could seek consent to include an individual's information in the exchange, contingent upon the individual's agreement to use and disclose all information for certain defined purposes. Of course, there are substantial downsides to seeking affirmative consent to include e-health information in the exchange, as explored in connection with the first challenge.

• The e-health information exchange could ask the Arizona legislature to amend laws to facilitate the e-health information exchange. For example, Arizona confidentiality laws might be amended so that all information is subject only to the restrictions in the federal HIPAA Privacy Rule. An alternative might be to reduce the amount of information subject to greater confidentiality restrictions. For instance, the communicable disease laws—which currently protect information regarding all reportable diseases, including flu, measles and mumps—might be amended to protect only those communicable diseases that are stigmatizing to individuals, such as HIV/AIDS. Finally, the Arizona legislature could be requested to consider allowing disclosure of all health information for the purposes of the e-health information exchange, once those are decided.

• The e-health information exchange could request state agencies to amend regulations to facilitate the e-health information exchange. For example the present AHCCCS regulations substantially limit the ability of AHCCCS and its contractors to disclose member health information. In addition, the ADHS licensure regulations for adult day healthcare facilities still require medical records to be "recorded in ink," which may be interpreted to prohibit electronic records.

Challenge 3: How will the e-health information exchange handle minors' health information?

As described in Appendix E, minors have the right to consent to certain types of healthcare in Arizona, such as treatment for sexually transmitted diseases, HIV testing, alcohol and drug abuse treatment, and prenatal and other reproductive care. Minors also have the right to consent to *all* healthcare if they are emancipated, have been married, are homeless, or are in the military. Where minors have the right to consent to healthcare, and actually provide that consent, the minors also have the right to control the health information related to that care and must authorize disclosure of that information to their parents or guardians. The e-health information exchange should determine how to satisfy the participants' legal obligations to protect minors' right to control access to their health information. The exchange might consider the following options:

- The e-health information exchange might implement a mechanism for providers to "flag" information related to healthcare to which a minor consented, where the minors' authorization is required for disclosure to parents or guardians.

- The e-health information exchange could exclude minors' health information from the system if that information relates to healthcare for which the minor has the right to consent (such as substance abuse treatment, HIV testing, and other types of specific healthcare). Of course, excluding that information may be an unsatisfactory choice if that information is significant to other treatment provided to the minor.

- The e-health information exchange could request the Arizona legislature to pass a law granting parents and guardians the right to see their children's health information, perhaps with exceptions to protect the minors in cases of abuse or other circumstances. However, there are substantial policy reasons that counsel against this route, such as discouraging minors from obtaining treatment for sexually transmitted diseases or prenatal care.

These three challenges—and others that likely will be encountered in the journey to implement an e-health information exchange—are surmountable, but will require careful consideration based on the policy goals of the e-health information exchange, how the exchange is structured, the type of e-health information to be included, the types of participants in the exchange, and the purposes for which the exchange is accessed by the participants.

III. Conclusion

There is increasing recognition that HIT and electronic connectivity across healthcare organizations and among healthcare providers plays a key role in addressing the country's numerous healthcare challenges. Fostering greater use of HIT and e-connectivity is a priority for the Bush Administration and many federal agencies. Moreover, momentum is building across the country, as evidenced by the numerous HIT and health information exchange (HIE) initiatives underway across the nation and in Arizona.

We must build on this momentum to reach the goals expressed in the Governor's Executive Order to develop an e-health information exchange in this state.

The *Health-e Connection Roadmap* Steering Committee and Task Forces will provide a forum for discussion, communication, collaboration, and coordination to achieve points of agreement related to the use of HIT and to achieve interoperability to improve the quality of care and decrease the costs of providing that care in Arizona.

Arizona is in an excellent position to achieve these goals. The existing HIE efforts across the state are limited or are in very early stages. Moreover, Arizona has a history of collaboration among various stakeholders. Finally, healthcare leaders throughout Arizona are excited and enthusiastic about the opportunity to improve patient care and delivery through health information exchange developed over a staged, multi-year plan. With hard work and informed decisions, we have the opportunity to create a "common framework" to achieve e-health information exchange in Arizona.

IV. Appendices

Appendix A: Recent Federal Legislation

- *(S. 16) Affordable Health Care Act (Kennedy, D-MA) – (January 2005)*: Reduces the cost of quality healthcare coverage and improves the availability of healthcare coverage for all Americans and addresses the issues of drug safety, healthcare information technology and standardized measures of quality healthcare. It also establishes an Office of Health Information Technology within the Executive Office of the President. In collaboration with private sector stakeholders this act will promote the adoption of standards, interoperability, and the use of clinical decision support. It authorizes grants to physician networks, hospitals, and group health plans and other insurers to develop HIE. This act also evaluates the development and reporting of uniform healthcare quality measures.

- *(H.R. 747) National Health Information Incentive Act (McHugh, R-NY and Gonzalez, D-TX) – (February 2005)*: Amends title XI of the Social Security Act to achieve a national health information infrastructure, and amend the Internal Revenue Code of 1986 to establish a refundable credit for expenditures of healthcare providers implementing such infrastructure. The purposes of this legislation are to develop and test national standards; and create incentives to encourage physicians to adopt HIT (including electronic health records, electronic prescribing systems, evidence-based clinical support tools, patient registries, and technology to improve patient care). It also authorizes the creation and the necessary funds for the Office of the National Coordinator for Health Information Technology.

- *(S.544) Patient Safety and Quality Improvement Act of 2005 (Jeffords, Gregg, Enzi, Bingaman, Frist and Murray) – (March 2005)*: Amends the Public Health Service Act to provide for the improvement of patient safety and to reduce the incidence of events that adversely effect patient safety. Promotes the adoption of standards that promote the electronic exchange of healthcare information and provides for the ongoing review and periodic updating of the standards developed.

- *Budget Reserve Fund (April 2005)*: Enables the Committee on Finance or the Committee on Health, Education, Labor, and Pensions to report legislation that provides incentives or other support for adoption of modern information technology to improve quality in healthcare; and provides for performance-based payments that are based on accepted clinical performance measures that improve the quality in healthcare, if such legislation is deficit neutral for the period of fiscal years 2006 through 2010.

- *(H.R. 2234) 21st Century Health Information Act (Kennedy D-RI, Murphy R-PA) – (May 2005)*: Calls for legislative provisions that transform the healthcare system by preventing medical errors, improving the use of best practices in medicine, reducing unnecessary duplication, streamlining administration, creating research and public health monitoring opportunities and changing quality reporting. It provides grants for regional HIE networks, allows for Medicaid payments for information infrastructure for health information network and IT, adopts HIT products certification criteria and governance processes, provides for adjustments to Medicare payments to providers and suppliers participating in HIT, and amends Stark regulations.

- *(S.1227) Health Care Quality Improvement Act of 2005 (Stabenow – D-MI, Snowe – R-Maine) – (June 2005)*: Provides for grants for healthcare providers to adopt HIT and modifies Medicare's payment system to reward providers for using healthcare IT. The bill offers funding to providers to purchase, lease or install IT, improve or upgrade existing technologies or pay for electronic health records systems. In addition, the bill creates a reserve fund for rural hospitals to pay for IT and promotes the adoption of healthcare IT standards.

- *(S.1262) The Health Technology to Enhance Quality Act of 2005 (Frist-R-TN, Clinton – D-NY) – (June 2005)*: Authorizes processes for establishment, maintenance and adoption of HIT standards, provides grants for interoperable information systems,

and establishes the use of healthcare quality measures. It also creates a statutory safe harbor from the federal "Stark" self-referral and anti-kickback laws for standard compliant hardware, software and support services. It also will make recommendations for harmonizing state laws to promote the secure electronic exchange of health information nationwide.

- *(S.1355) Health Information Technology Quality and Improvement Act (Enzi-R-WY, Kennedy-D-MA) – (June 2005)*: The introduction of the Health Information Technology Quality and Improvement Act of 2005 and the Medicare Value Purchasing Act of 2005 (S. 1356) marks a major milestone in a three-year effort to drive improvements in healthcare quality and safety through the adoption of information technology. The bi-partisan legislation was jointly introduced late June in bills by Senators Chuck Grassley (R-IA) and Max Baucus (D-MT) of the Senate Finance Committee and Sens. Michael Enzi (R-WY) and Ted Kennedy (D-MA) of the Senate Health Education, Labor and Pensions (HELP) Committee.

  This legislation has the ability to accelerate the use of IT to improve healthcare quality and patient safety, by recognizing the key policies that will accelerate its adoption, including those related to interoperability and data standards, privacy and security, incentives and grant programs, and the role of the federal government. Together, the bills recognize the importance of the need for funding to support providers, states, and regional or local health information networks as they begin to invest in HIT to support improvements in healthcare. The Medicare Value Purchasing Act of 2005 integrates the use of HIT into its payment programs while the Health Information Technology Quality Improvement Act calls for grants and loan programs.

- *(S. 1356) The Medicare Value Purchasing Act of 2005 (Introduced by Senator Grassley and Senator Baucus) – (June 30, 2005)*. Integrates the use of HIT into its payment programs. A revised version of the bill was placed into budget legislation passed by the Senate on November 3, 2005 as part of *The Deficit Reduction Omnibus Reconciliation Act of 2005*.

- *(S. 1418) The Wired for Health Care Quality Act (Enzi-R-WY, Frist-R-TN, Kennedy-D-MA, Clinton-D-NY) – (July 2005)*: The Wired for Health Care Quality Act was passed by the Senate Health, Education, Labor and Pensions Committee on July 20, 2005 and was approved by unanimous consent in the Senate on November 18, 2005. The legislation contains HIT-related provisions on development of quality measurement systems related to improve patient care, competitive grants for qualified HIT and implementation of regional or local HIT plans, state loan programs, demonstration projects, certification, interoperability, privacy and security, standards and other issues. It establishes the American Health Information Collaborative--public-private consultation on standards development. It codifies the Office of the National Coordinator for HIT (ONCHIT) and provides grants to providers and regional health networks. It establishes grants for:

  – Implementation of regional/local HIT plans;

  – Physicians, hospitals or other healthcare providers; and

  – State loan programs for sustainability.

Total grants: $125 million in '06, $150 million in '07 and such sums as needed thereafter.

- (*H.R 4157} - Health Information Technology Promotion Act (Johnson-R-CT) – (July 2005)*: This draft legislation codifies ONCHIT headed by National Coordinator, responsible for activities, such as
  – Principal advisor to HHS secretary on development and use of HIT;

  – Standards harmonization for use in exchange of health information; and

  – Certification/inspection of HIT products, services and architecture.

It also requires study for harmonization of state laws and regulations regarding security and confidentiality of health information and requires rule-making for adoption of ICD 10 codes. It also provides exemption from Stark, anti-kickback and other statutes for any non-monetary remuneration. It requires

remuneration without regard to the number or value of physician referrals and requires the HHS secretary to conduct a study on safe harbor effectiveness in increasing HIT adoption. Effective 180 days after bill enactment.

Improving Quality of Care in Medicare

The Medicare Value Purchasing (MVP) Act of 2005 requires the Secretary of Health and Human Services to develop and implement value-based purchasing programs under Medicare for acute-care hospitals, physicians and practitioners, Medicare Advantage plans, end-stage renal disease (ESRD) providers, and home health agencies, and to take some initial steps toward value-based purchasing in skilled nursing facilities. This legislation takes a critical step toward addressing the problems of increasing healthcare costs, and the need for improvement in patient safety and quality of care.

Measuring Quality and Efficiency of Care

The MVP Act of 2005 outlines the process and requirements for the development, implementation, and updating of a quality measurement system that will guide reporting and value-based purchasing programs. This process is intended to be open and transparent, and to involve all the key stakeholders:

- Measures shall be developed by nationally-recognized organizations, researchers, and provider-based groups;

- The HHS secretary shall contract with a private not-for-profit entity representing diverse stakeholders that will build consensus around sets of measures;

- The HHS secretary shall consult with public-private entities to examine issues of data collection and reporting.

Principles for Medicare Value Purchasing:

- Involve stakeholders: Involve providers, beneficiaries, payers, and other experts in developing and implementing the program.

- Two-phase program: In the first phase, Medicare reimbursement updates will be tied to reporting data on quality measures. In the second phase, a portion of total payments will be tied to quality performance. Providers will be rewarded for meeting threshold levels of quality, and for improving the quality of care they provide.

- Phased-in approach: The portion of total payment tied to quality of care will be 1 percent in the first year, scaling up to 2 percent over a 5-year period.

- Increase transparency: Data on quality of care will be made available in a useable manner to Medicare beneficiaries and the public.

Appendix B: Sampling of State and Regional HIE Initiatives

Connecting Colorado

The Connecting Communities Colorado eHealth Initiative (CCCeHI) is an innovative clinical informatics project that is demonstrating the feasibility of providing electronic continuity for clinical services in order to improve the quality of patient care, making the delivery of care more efficient and therefore less costly. The CCCeHI consortium is creating the technical capacity, legal framework and secure environment to enable clinicians to access patient information from the clinical data repositories of four healthcare delivery systems: the Denver Health integrated hospital and community clinic system, The Children's Hospital, the University of Colorado Hospital, and the Kaiser Permanente of Colorado Health Plan.

University of Colorado Health Sciences Center (UCHSC) is the only academic medical center within a 500-mile radius, and the School of Medicine is the only medical school in the state. The Children's Hospital is the largest provider of pediatric specialty care in the state. The University of Colorado Hospital is the largest teaching hospital in the metro area, and Denver Health annually provides services to more than 150,000 Denver residents. These three institutions are the major providers of underserved/underinsured care in the state. Kaiser Permanente of Colorado has more than 400,000 enrollees and is the third-largest HMO in the State.

Florida

Gov. Jeb Bush issued a May 4, 2004, executive order creating the Governor's Health Information Infrastructure Advisory Board to advise the state as it develops and implements a Florida health information infrastructure. The Advisory Board has since recommended that Florida be a lead state in establishing community pilot initiatives to transition to an electronic records system, and has begun developing criteria for selection of communities to participate in pilot programs on a 24-month timetable.

In addition, on Aug. 10, 2004, the Florida Agency for Health Care Administration (AHCA) announced that it was distributing 2,000 hand-held personal data assistants (PDAs) to Medicaid physicians, increasing the number of physicians using the PDAs to 3,000. The agency expressed confidence that the increased number of hand-held devices would enhance patient safety by providing real-time data, drive down medication costs by better utilization of prescriptions, and reduce fraud. The use of PDAs increased access to Medicaid's preferred drug list, patient-specific prescription histories, Clinical Pharmacology© drug information, and drug interaction screening tools. The system provides a 60-day history of all Medicaid drugs dispensed to a specific patient regardless of prescriber, allowing physicians to better monitor all patient medications.

Indiana

This state has been at the forefront of HIE, creating the nation's first "operational electronic community health record" in Indianapolis. The Indiana Health Information Exchange (IHIE) is now linking five major health delivery systems, which encompass virtually all of the hospitals in Indianapolis, for the secure transmission of laboratory results and other clinical messages to and from practicing clinicians in the region. IHIE is "wiring" healthcare by creating a common, secure infrastructure that will enhance communication and information sharing among providers. Additionally, IHIE ensures patient privacy while also allowing providers to access patient information housed in participating hospitals through a set of clinical databases managed by the Regenstrief Institute on the campus of the Indiana University School of Medicine. IHIE officials expect to expand to other parts of Indiana, eventually becoming the hub of a statewide electronic health record network.

IHIE itself was founded last year by BioCrossroads, a public-private effort to promote life sciences and technology in central Indiana. Over the last year-and-a-half, BioCrossroads has become one of Indiana's highest visibility economic development efforts. Recognizing the need for expanded venture capital, BioCrossroads helped organize the Indiana Future Fund I to raise awareness of the state's life sciences industry and encourage investment in Indiana life sciences opportunities. The Indiana Future Fund I is a

$73 million capital pool that will invest in regional and national venture capital funds, encouraging direct investment in Indiana life sciences opportunities. Other IHIE partners include Central Indiana Corporate Partnership, the City of Indianapolis, Clarian Health Partners, Community Health Network, Health and Hospital Corporation of Marion County, Indiana State Department of Health, Indiana State Medical Association, IU School of Medicine, Indianapolis Medical Society, Marion County Health Department, St. Francis Hospital and Health Centers, St. Vincent Health and Wishard Health Services.

Kentucky

Kentucky Gov. Ernie Fletcher, M.D., signed legislation to create a statewide electronic health information network. The bill, which passed both the state House and Senate unanimously, authorizes the creation of a statewide information exchange. The Kentucky network will incorporate about six regional health information exchanges around the state. The law also provides $350,000 to establish endowed chairs at the University of Kentucky and the University of Louisville for research and development of the state network.

Massachusetts

Gov. Mitt Romney, as part of the effort to reform the Commonwealth's healthcare system in December 2004, launched an initiative designed to reduce medical errors and save costs by converting paper medical records into electronic form. Romney set ambitious goals for the conversion to electronic health records, saying he would like to see this innovative technology adopted in the majority of the state's hospitals over the next five years. By keeping medical records electronically, physician groups, health centers and other healthcare providers will be able to exchange patient information more easily. In late 2004, Romney announced his intention to work with the Legislature to pass a comprehensive, market-based reform program for the state's healthcare system. One of its features is a system of electronic health records.

Romney also lauded in late 2004 the newly-formed Massachusetts eHealth Collaborative (MAeHC), a non-profit governing entity that represents 34 of the state's key healthcare stakeholders, for leading the electronic health records push. Blue Cross Blue Shield of Massachusetts has pledged up to $50 million to enable the collaborative to expand electronic health records across the Bay State. MAeHC selected three pilot communities to begin implementing clinical information technology systems and data exchange capabilities.[64] These communities will serve to develop operational and financing models to facilitate the statewide adoption of these technologies.

Oregon

The Oregon Health Policy Commission presented its March 2005 *Report to the 73rd Legislative Assembly: Electronic Health Records and Data Connectivity*, which provided recommendations for an action plan, including appointment of a state Health Information Technology leader, seed funding, and a pilot project to demonstrate a secure, interoperable system for accessing electronic health records regardless of boundaries.[65]

Rhode Island

This state has made considerable progress with developing goals that will support the deployment of HIT. One key element of the Rhode Island effort is a supportive state government. It is represented at meetings of the Rhode Island Quality Institute by Lt. Gov. Charles Fogarty and Health Department Director Patricia Nolan, a physician, both institute board members, and Nolan's deputy, William Waters, who oversees the state's public data-reporting program. Some of the state's major healthcare players are taking big steps into HIT. In July 2004, a Healthcare Information Technology and Infrastructure Development Fund was developed within the department of health for the purpose of promoting the development and adoption of HIT designed to improve the quality, safety and efficiency of healthcare services and the Rhode Island Healthcare Information Technology Advisory Committee was created through 2004 RI H.B. 7698. The state of Rhode Island also this year received a five-year grant for $5 million from the Agency for Healthcare Research and Quality to develop a statewide infrastructure for HIT. The state is also fortunate to have a strong collaborative known as the Rhode Island Quality Institute (http://www.riqi.org), a not-for-profit organization

based in Providence that is composed of many of Rhode Island's top healthcare and business leaders. The Institute is working to connect every provider and, eventually, every patient's home in the state, to a universal healthcare information infrastructure. The Institute is supported by grants from the Rhode Island Foundation, the contributions of its members, contributions from Rhode Island-based businesses and agreements with project partners.

Santa Barbara County Care Data Exchange

The Santa Barbara County Care Data Exchange Inc., a non-profit community organization created to enable regional health information sharing within Santa Barbara County, and CareScience, a division of Quovadx, Inc., providing care management, clinical analysis and regional health information data sharing solutions for hospitals and healthcare systems, have implemented a Santa Barbara County Care Data Exchange solution in Santa Barbara County with imminent plans for a phased roll-out to the community. The Care Data Exchange operates as a public utility and allows a patient's clinical information to be readily accessible by any authorized person, including the patient. It operates as a peer-to-peer health information exchange, including the sharing of reports, results, and personal health information. The CDE seeks to utilize information technology too efficiently and effectively link data holders with data users and to contribute to improved patient safety, quality, efficiency, and access to care.

Taconic Health Information Network and Community (THINC)

Taconic IPA, a not-for-profit organization founded in 1989, is a healthcare delivery network serving more than 500 physician practices. To achieve the goal of physician adoption of HIE technology, Taconic IPA is deploying a standards-based HIE network of physician services with the goal of providing a greater continuity of care, better clinical outcomes, reduced costs, safety, and improved operational efficiency. The HIE network of physician services, known as Taconic Health Information Network and Community (THINC), supports efficient communication among an expanded number of practices, hospitals, labs and payers and includes the development of standardized electronic health records, e-mail access to physicians, staff and patients, e-prescribing capability, and related technical support services.

The Taconic IPA has launched an initiative, the Hudson Valley Electronic Medical Record (EMR) Collaborative. This effort includes a multi-disciplinary group of representatives who provide counsel on system requirements, interoperability, and functionality as the project moves forward to have two leading electronic medical record vendors on the portal. The Taconic IPA is one of the first physician organizations in the country to attempt deployment of a standard EMR with a community-wide electronic data exchange.

Since 2003, physicians have used a clinical messaging service that lets them exchange clinical data electronically over the network, including inpatient and outpatient test results and hospital reports with three hospitals and a diagnostic laboratory. To encourage its members to use that service, the IPA pays for the cost of the service and will do the same when THINC rolls out e-prescribing software in 2005. In addition, several insurers and employers have committed to paying annual bonuses to doctors who prescribe electronically, which will encourage many doctors to adopt e-prescribing.

Also, data source entities (hospitals and reference labs) pay a monthly fee for data transfer into the system. In addition, the physicians using the various applications (base line portal with e-results delivery, e-prescribing and full EHR) pay a monthly subscription fee. Subscription fees vary with the application used. Doctors within the Taconic IPA receive e-prescribing free as a benefit from the organization. Non-IPA physicians or any doctor using the EHR will pay for their subscription. Health plans and self-insured employers will pay incentives to physicians using the system, helping them underwrite the monthly subscription costs.

The Taconic IPA was also awarded a $1.5 million grant from the federal Agency for Healthcare Research and Quality (AHRQ) to help with implementation costs. The IPA is matching the grant funds to help physicians as outlined above and to conduct a study comparing a group of doctors using e-prescribing and a full EHR against a paper-based control group. The study will evaluate medication errors, quality parameters and cost in the three groups to demonstrate whether published studies from several universities and staff-model settings are reproducible in a community of small to medium-sized practices with competing community hospitals.

Tennessee

The Volunteer State is the home of two regional efforts designed to facilitate HIE – CareSpark and the Volunteer eHealth Initiative. In the summer of 2004, Gov. Phil Bredesen proposed a technology pilot project to improve the delivery of healthcare in Southwest Tennessee and help lay the groundwork for better care and disease management statewide. The "Volunteer eHealth Initiative" will provide a framework for hospitals, physician groups, clinics, health plans and other healthcare stakeholders in a three-county regional data-sharing project. The project was prompted by long-term efforts to reform TennCare, but the state also cited the potential to benefit the entire region. If the pilot project is successful, it eventually could be expanded to other parts of the state. Governor Bredesen said his Administration will commit up to $10 million to fund the initial phase of the Volunteer eHealth Initiative over the next five years. Additionally, the State was one of five states awarded $1 million per year for the next five years in federal funding through the U.S. Agency for Healthcare Research and Quality. The Volunteer eHealth Initiative will be managed by the State of Tennessee in a partnership with Vanderbilt University Medical Center, a national leader in the field of medical informatics—the use of technology to improve medical care and make the healthcare system more efficient.

One goal of the planning process is to examine the possibility of creating for each patient a medical record that can be accessed—with the patient's permission—wherever he or she seeks care.

CareSpark – Tri-Cities TN-VA Care Data Exchange Project serves the Central Appalachian region including 16-counties in southwest Virginia and Northeast Tennessee, and areas of adjacent counties in western North Carolina and southeastern Kentucky. This effort proposes to develop a secure network that allows physician offices, hospitals, public health departments, pharmacies, laboratories and imaging centers to communicate electronically in order to improve patient care and safety. Key strategies are to: develop and support an infrastructure for HIT that delivers relevant information at the point of care; build community consensus that supports and encourages clinical process improvement, improved health outcomes and patient safety; collect and utilize de-identified aggregate data for the purpose of public health interventions and improvement in regional health status; and align financial incentives for providers, patients and purchasers so that all share equitably in the savings realized from improved process and better health outcomes.

Wyoming

This past session Wyoming officials passed legislation creating the Wyoming Healthcare Commission Information Technology Management Subcommittee and charged it with developing a plan for implementation of a comprehensive healthcare information and communication technology system in the state. The state recently launched an "electronic health records study," funded with $400,000 allocated by the legislature, to assess the needs and capacity of the healthcare industry and the existing telecommunications infrastructure of the state. A report, including recommendations around a business plan and governance structure for a statewide health information infrastructure, was due in September, 2005.[66]

Appendix C: Arizona Leaders Interviewed

Jim Apperson
President and Chief Executive Officer
Arizona Chamber of Commerce and Industry

Dr. Kalyanraman Bharathan
Director of Management Engineering and Quality
University Physicians

Richard Boals
President and Chief Executive Officer
Blue Cross Blue Shield of Arizona

Kathy Byrne
Chief Executive Officer
El Rio Health Center

Gene Carruth
Vice President, eCommerce Services
Blue Cross Blue Shield of Arizona

Jack Cranmer
Chief Information Officer
Mayo Clinic Scottsdale

Chris Cronberg
Chief Executive Officer
Northern Cochise Community Hospital

Benton Davis
Chief Executive Officer – Western States
United Health Care

Jack Davis
President and Chief Executive Officer
Arizona Public Service

David Engelthaler
State Epidemiologist
Arizona Department of Health Services

John Fears
Director
Phoenix Veterans Administration Medical Center

Peter Fine
Chief Executive Officer
Banner Health

Susan Gerard
Director
Arizona Department of Health Services

Michal Goforth
Executive Director
Pima Community Access Program

Greg Henderson
Client Services Manager
IBM

Wyllstyne Hill
Chief Information Officer
Raytheon Missile Systems Company

Roger Hughes
Executive Director
St. Luke's Health Initiatives

Mark James
Vice President, Human Resources
Honeywell Aerospace

Jack Jewett
Senior Vice President, Public Policy
TMC Healthcare

Shauna Koch
Senior Healthcare Consultant
IBM Business Consulting Services

Susie Nash
Vice President, Medicare Division
Blue Cross Blue Shield of Arizona

Chris Nohrden
Advisory Industrial Hygienist
IBM Global Well-Being Services and Health Benefits

Celeste Null
Biomedical Engineering Manager, Digital Health Group
Intel Corporation

John Rivers
President and Chief Executive Officer
Arizona Hospital and Healthcare Association

Phyllis Rowe
President Emeritus
Arizona Consumers Council

Peach Unrast
Chief Information Officer
Northern Cochise Community Hospital

Mike Warden
Chief Information Officer
Banner Health

Amanda Weaver
Executive Director
Arizona Osteopathic Medical Association

Dr. Ronald Weinstein
Professor and Head, Department of Pathology
Director, Arizona Telemedicine Program
University of Arizona College of Medicine

Anne Winter
Policy Advisor, Health/Human Services
Arizona Office of the Governor

Appendix D: Catalog of Arizona HIT and HIE Initiatives

The following is a list of Arizona HIT and exchange initiatives that were revealed during the Arizona leader interview process. This list is based on the sample of organizations and individuals interviewed (see Appendix C) and is not inclusive of all Arizona HIT and HIE initiatives.

AHCCCS Provider WEB Project

The Provider Web Project is a pilot project using a website that allows AHCCCS providers to verify member eligibility and enrollment electronically, providing an alternative to the telephone for providers to perform eligibility verification.

Arizona Health Alert Network

The Arizona Health Alert Network was developed as part of the efforts to enhance the public health response capabilities for the State of Arizona. This program was created to address the communications needs associated with both public health response and daily operational sharing of information for planning and disease surveillance. The Health Alert Network was designed around six major objectives.

1. Redundant Communications - Developing systems that add redundancy as well as daily use, without duplication of existing response systems.

2. Integrated Development - No stand alone systems. All development is integrated within public health and with other response partners.

3. Secure Communications - Recognizing the need for secure communications within the public health community.

4. Outreach - Recognizing and aiding communications with public audiences for response efforts and risk communication.

5. Collaboration - Facilitating statewide collaboration for public health preparedness in areas of planning and information sharing.

6. Response Needs - Prepare for varied levels of scaled public health response with the development of tracking systems and alternative communication mechanisms.

These six objectives have led to the development of many projects to address response communications and information sharing. Among them are:

- Satellite Downlink Network - For the receipt of public health broadcasts for distance learning and response activities.

- SIREN Development - Secure web-based collaboration and alerting network to support response and disease surveillance applications.

- Satellite-Based Response Equipment - Portable response equipment for remote clinic operations and remote emergency operations center.

- Satellite Internet Communications - Coordinated redundant satellite Internet connections for local public health and hospitals.

- Telehealth – Video Conferencing Network - Coordinated with local public health to utilize telehealth for statewide trainings, planning, and emergency communications.

Arizona HealthQuery (AZHQ) Project

AZHQ is an integrated database of medical records of from public and private data partners in Maricopa County. Currently sponsored by Arizona State University, St. Luke's Health Initiatives (SLHI), and the Flinn Foundation, its purpose is to monitor the performance of the local healthcare system in terms of access, quality and cost, and to conduct research that improves system performance over time. The database contains more than 4 million individual records.

Coalition on Healthcare Data Exchange

The Coalition on Healthcare Data Exchange ("Coalition") is a partnership among southern Arizona hospitals, safety net providers, county governments, area businesses, and the State of Arizona to more efficiently provide care for the uninsured and under-insured; and to improve the efficiencies and quality of the healthcare delivery system for all individuals and patients. The Coalition has two fundamental objectives:

1. To have all area health providers utilize a common electronic eligibility screening tool to assist in determining available assistance or coverage for uninsured or under-insured individuals. Individuals screened may be found eligible for AHCCCS, KidsCare, commercial insurance coverage, assistance from drug manufacturers, or through their employer's participation in Health Care Group (lower cost insurance for small employers).

2. Develop and utilize a clinical data exchange system including a "continuity of care" (CCR) record system with the eventual development and implementation of a more expansive regional health information organization (RHIO) whereby all area health providers, including physicians, can have access to a clinical data exchange for all patients (not just uninsured). The data exchange also will contribute in region-wide disaster/bio-terrorism preparedness, and public health surveillance and epidemic management.

Health-e-Arizona

Health-e-Arizona is a web-based enrollment application for public insurance. It was developed by El Rio Health Center through a unique public/private partnership involving AHCCCS, Arizona Department of Economic Security, the Community Health Centers Collaborative Ventures, and Deloitte Consulting. Although the primary goal of the program is to reduce the high number of uninsured and underinsured people in Arizona, the premise is complementary: increasing eligibility for insurance or discounted care is only as good as our ability to connect people with the benefits for which they are eligible. Therefore, Health-e-Arizona is designed to quickly and easily determine eligibility for benefits, improve coordination of care, reduce duplication of services, and improve healthcare services to the public.

Health-e Arizona is a paperless, electronic interview pilot project that provides real-time eligibility screening offering English and Spanish versions in an application that is fully compliant with ADA. The pilot is a partnership between AHCCCS, DES and the Community Health Centers Collaborative Ventures and operates out of El Rio Health Center locations in Tucson, DES offices in Pima County and the AHCCCS SSI/MAO and KidsCare offices in Phoenix.

MEDSIS – Medical Electronic Disease Surveillance and Intelligence System

To detect and respond to an outbreak of infectious disease or bioterrorism event, a Web-based application called MEDSIS (Medical Electronic Disease Surveillance and Intelligence System) is being developed to electronically capture and analyze disease information from Arizona hospitals and clinical laboratories.

The design and functionality of this application meets the federal standards and is scalable and flexible to meet changing disease surveillance needs, such as a newly identified diseases like West Nile and SARS. MEDSIS is a statewide system hosted and supported by the Arizona Department of Health Services for use by local health departments, and individuals and institutions responsible for reporting communicable diseases. Participating institutions, including local health departments, clinical laboratories, hospitals, clinics, primary care offices, and emergency medical services, will electronically transmit disease information to MEDSIS.

When completed, MEDSIS will be linked to numerous other data sources including:

- Mesa Fire Department EMS run data

- National Retail Drug Monitoring System – Over the-Counter Pharmaceuticals

- BIOSENSE – VA, Drug Sales, Military Hospitals

- Other National Systems
  - BIDS – Border Infectious Disease Systems
  - SDN - Secure Data Network
  - Arbo-Net – ArboVirus Surveillance

MEDSIS also includes integrated surveillance data analyses to identify outbreaks. Data analysis applications currently being used include:

- EARS - Early Aberration Reporting System

- ARC-IMS – Geographical Information System

- SatScan –Space and Time Cluster Analysis

MEDSIS is integrated into the SIREN System and thus can take advantage of alerting capabilities, email communications, data transmission services, the public health directory and the system security. Thus an alert can be emailed or telephoned if the incidence of a disease exceeds a preset threshold.

The first version of MEDSIS is being deployed by 14 county health departments, with a final completion date in January 2006. A second version with additional enhancements and functionality will begin development in December 2005 and is scheduled to be deployed in the summer of 2006.

SIREN (Secure Integrated Response Electronic Notification) System

The Arizona Department of Health Services has developed SIREN, an Internet-based portal application designed to provide alerting capabilities, redundant email communications, and a system for sharing response and planning information. The SIREN System was developed as a partnership with local health departments, to address public health preparedness needs. The system is built upon an infrastructure that can support other public health preparedness needs, including electronic disease reporting.

SIREN System Features
1. Sending Health Alerts and Notifications
2. Redundant Email
3. Information Sharing

The SIREN alerting features, as well as all features of the system, are available anywhere a user can access the Internet. In addition, alerts can be sent by fax, email, pager, or telephone (voice). Information that is typed into an alert is read by a computer-generated voice that converts typed text to synthetic speech. In addition, the user's alerts are posted on the home page of the system. Alerts can be designated as Low, Medium, or High, and the user can specify the type of the communication based on the severity of the message. SIREN Alerting Mechanisms include: email, fax, phone (land-line or cell), text messaging, and pager.

Alerts are distributed based on the user's public health role within the system. Currently the system has defined 18 state and local public health roles (i.e., Bioterrorism Coordinator, Immunization Director, and Public Health Nursing Director). The definitions focus on the responsibilities of the role, and, therefore, one user can have more than one role.

Secondary or redundant email is another feature of the system. The email is web-based and secure. SIREN Email is an effective way to ensure those alerts are received even if office email is unavailable. The SIREN email is a secondary way to not only receive alerts, but also communicate information to other SIREN users, as well as to external partners.

The Web Portals on SIREN are separate mechanisms for sharing information. Sharable information can include such items as response plans, equipment manuals, resource lists, and medical management guidelines. All portal information is categorized and searchable for rapid research and availability. The portals also provide news, news links, announcements, and upcoming distance learning programs.

Finally, the SIREN System infrastructure hosts other disease surveillance and response applications. Therefore, the SIREN System represents a single access point for state-wide public health disease surveillance, response, and alerting information and communications.

Banner Health

www.bannerhealth.com

Based in Phoenix, Banner Health has 20 hospitals and other facilities that offer an array of services including hospital care, home care, hospice care, nursing registries, surgery centers, laboratories, and rehabilitation centers. These facilities are located in Arizona, Colorado, Nebraska, California, Nevada, Wyoming, and Alaska.

Banner Health is fully underway in implementing a highly integrated and standardized suite of clinical information systems across all of their facilities, in and outside of Arizona. Upon completion of this implementation, scheduled for early 2008, Banner Health will have all of its inpatient hospitals operating on the same suite of highly integrated clinical applications, with a fully functional electronic medical record, supported by Physician Order Entry, built upon evidence-based medical knowledge and operated out of a single data center and a single Banner Health clinical database.

Banner Estrella, Banner's newest inpatient facility located in the Phoenix West Valley, is the prototype for Banner's clinical information technology solutions, and currently has most of the planned applications up and running, including a broad suite of clinical applications, Physician Order Entry, a fully functional electronic medical record, and standard order sets based on the latest clinical knowledge.

Mayo Clinic

www.mayoclinic.org

Mayo Clinic operates facilities in Rochester, Minnesota, Jacksonville, Florida, and Scottsdale, Arizona. Mayo Clinic is the first and largest integrated group practice in the world. Collectively, the three clinics treat more than half a million people each year.

All Mayo Clinic locations share basic technology infrastructure and networking and the hospitals are equipped with computerized systems to speed the flow of decision-making information to medical professionals and improve the quality of care. Mayo Clinic's electronic medical record and filmless, com-puterized radiology systems provide up-to-the-minute information and enable sharing of key patient data across its facilities.

Mayo Clinic is collaborating with IBM to accelerate advances in patient care and research with an aggressive set of technology initiatives. As a first step, IBM and Mayo Clinic integrated 4.4 million patient records into a unified system based on a technology that incorporates robust security and privacy features. This system will allow physicians and researchers access to a comprehensive set of records that can be analyzed with the security and privacy needed to protect patient confidentiality.

At Mayo Scottsdale, a number of HIT initiatives are currently underway, including a recent pilot to provide referring physicians with access to test and radiology results via their physician portal.

TMC HealthCare

www.tmcaz.com

TMC HealthCare is a regional nonprofit hospital system in Southern Arizona with Tucson Medical Center and El Dorado Hospital at its core. TMC's campus also serves as home to the Tucson Orthopaedic Institute, the Cancer Care Center of Southern Arizona and the Children's Clinics for Rehabilitative Services.

TMC Healthcare's strategic direction and plans involve the development of these new facilities and e-Healthith 21st century design concepts, including widespread use of EMRs between 2005 and 2010. Tucson Medical Center was opened in 1943 to meet the healthcare needs of the growing community and planned to complete its redevelopment and expansion by 2010. TMC HealthCare is in the process of developing a new facility to serve the growing southeast area with Rincon Community Hospital at Civano. It will marry the culture of an energy-efficient hospital, preserving/enhancing the natural environment, energy, and water use and using the US Green Building Council's Leadership in Energy and Environmental Design (LEED). The Green Building Rating System will be used as a guide for design and construction where possible, with high-tech solutions.

Veterans Health Administration

In Arizona, the Veterans Health Administration, within the Department of Veterans Affairs (VA), operates hospitals in Phoenix, Tucson, and Prescott, and 15 community-based outpatient clinics. The VA has built what is widely recognized, by the IOM among others, as "one of the largest and most sophisticated health information systems in the nation." The system, currently known as VistA®, was initiated in 1985, and it is now going through a complete systemic upgrade. VistA® reaches all 1,320 sites of care in the large VHA system, serving 4.1 million consumers annually in a $22 billion health system that includes 174 medical centers and employs 180,000 healthcare staff. Access to complete patient information has been found to greatly reduce medical errors and facilitate patient adherence to chronic condition care protocols.[67] The VA is now exploring ways in which private sector providers can access and implement the VistA® system.

My Health*e*Vet (MHV) is the gateway to veteran health benefits and services to help veterans better understand and manage their health. It provides access to trusted health information, links to federal and VA benefits and resources, the Personal Health Journal, and now online VA prescription refill. In the future, MHV registrants will be able to view appointments, copay balances, and key portions of their VA medical records online, and more.

Key features for My Health*e*Vet planned for 2006 include:

- Graphing will be added to journals to make it easier to visualize your health measurements.

- Rx Refill functionality will be upgraded to include name of medication.

- Veteran patients will be able to request key portions of their VA health record (e.g., labs, meds, discharge summaries, patient reminders).

- Veterans will be able to view appointments and copay balances online

- Veterans will be able to give access to some or all of their health information to others (e.g., doctors, family, veteran advocates).

Appendix E: Arizona's eHealth Legal Summary

This appendix describes the key legal issues that will affect the formation of an e-Health information exchange in Arizona. It discusses federal and Arizona confidentiality laws in some detail, and then covers laws governing consumer rights, medical record administration, telemedicine, electronic signatures, fraud, abuse, and antitrust. The legal issues involved in forming an e-Health information exchange are numerous, and this summary provides only a brief description of the issues that have to be tackled in Arizona.[68]

Health Information Confidentiality

As in many states, healthcare providers and health plans in Arizona must comply with a plethora of federal and state laws governing the confidentiality of health information. Most of these laws were written at a time when e-Health information exchange and regional health information organizations were a futuristic goal; the application of those laws to e-Health information occasionally poses a significant challenge. This section summarizes federal and state confidentiality laws, with an eye to those laws that may pose potential barriers to an e-Health information exchange program in Arizona.

(a) Federal Confidentiality Laws

i. HIPAA

The Health Insurance Portability and Accountability Act of 1994 (HIPAA)[69] is a law that applies to all health plans and most healthcare providers (called "HIPAA covered entities"). The federal regulations that implement HIPAA—the HIPAA Privacy Rule[70] and the HIPAA Security Rule[71] —create detailed rules for how health plans and healthcare providers may use and disclose health information and how they must protect that information, both in electronic and paper form. These rules also establish consumer rights to which any e-Health information exchange program must adhere.

The HIPAA Privacy Rule comprehensively regulates the internal use and external disclosure of health information, creating complicated rules for when permission is required from patients or health plan members. The Privacy Rule permits HIPAA covered entities to use or disclose health information without permission for basic healthcare functions, such as treating patients, getting paid for that treatment, and operating the healthcare organization (called "healthcare operations") and to disclose to individuals' family members and friends involved in their care. The Privacy Rule also permits HIPAA covered entities to disclose health information for a variety of public purposes, where the public interest in release of the individual's information outweighs the individual's interests in controlling their information, such as disclosures for public health activities.[72] HIPAA covered entities generally must get authorization from the individual to use or disclose the individual's health information for any other purpose.

Before a HIPAA covered entity may disclose health information, the covered entity must verify the identity of the person to whom it is releasing health information and the authority of that person to have access to the information, unless the covered entity already knows the identity and authority of the person to do so. The HIPAA Security Rule also requires a covered entity to have technical procedures to verify the identity of a person before granting access to electronic information.

Finally, in most circumstances when HIPAA covered entities use or disclose health information, or request health information from others, they must make reasonable efforts to limit the information to the "minimum necessary" to accomplish the intended purpose of the use, disclosure, or request. However, the minimum necessary standard does not apply to disclosures to a healthcare provider for treatment, to the individual of his or her own information, to a third party when authorized by the individual, and when the disclosures are required by law.

ii. Alcohol and Drug Abuse Treatment Information

The federal regulations governing alcohol and drug abuse treatment information—called the "Part 2 regulations"—impose broad confidentiality requirements.[73] These regulations apply to any "federally assisted" alcohol or drug abuse "program."

In many respects, the Part 2 regulations are more protective of patient privacy than the HIPAA Privacy Rule or state mental health laws (discussed below). Under the Part 2 regulations, information that identifies a patient as an alcohol or drug abuser and information obtained for the purpose of treating alcohol or drug abuse may be used or disclosed only with patient consent or in very limited circumstances, such as internally to treat a patient, to other medical personnel to treat an emergency, or to report child abuse and neglect.

Substance abuse programs have a significant restriction on disclosures: if a program obtains patient consent to release the patient's information (such as to obtain payment for the services provided), the program must include a written statement that warns the recipient of the information that the recipient may not further disclose the information unless permitted by the Part 2 regulations. A healthcare provider or health plan that receives confidential substance abuse information from a substance abuse "program" thus must follow the Part 2 regulations in redisclosing that information. It is unclear how this disclosure notice requirement will be implemented in an e-Health exchange program.

iii. Medicare Conditions of Participation

Medicare-certified healthcare providers must follow regulations called "Conditions of Participation."[74] These regulations contain medical record confidentiality requirements, but do not impose greater limitations than the HIPAA Privacy Rule.

iv. The Privacy Act

The federal Privacy Act[75] applies to federal government agencies that provide healthcare, such as the Veterans Administration. The Privacy Act's requirements are quite similar to the HIPAA Privacy Rule restrictions, and thus are not discussed here.

(b) Arizona Confidentiality Laws

An e-Health information exchange also must comply with a variety of Arizona statutes and regulations that protect the confidentiality of health information. This section discusses those Arizona laws.

i. General Confidentiality Requirements for All Healthcare Providers

Arizona has a general health information confidentiality law[76] that applies to "healthcare providers" (individuals who have professional licenses under Title 32), healthcare institutions licensed by the Arizona Department of Health Services (ADHS), ambulance services, and healthcare service organizations (HMOs). This statute permits healthcare providers to follow the HIPAA Privacy Rule in how they use or disclose health information.[77] For those healthcare providers that are not HIPAA covered entities, the state statute also lists the types of disclosures healthcare providers may make without getting patient authorization under Arizona law.

ii. Confidentiality Requirements for Specific Types of Healthcare Providers

Licensed healthcare providers also must comply with the confidentiality requirements in licensure requirements. Because none of these licensure requirements impose greater requirements than do the HIPAA Privacy Rule and other Arizona laws, this report cites the licensure requirements but does not discuss them.[78]

iii. Confidentiality Requirements for Health Plans

Health plans in Arizona must comply with the Insurance Information and Privacy Protection Act[79], which implements the Gramm-Leach-Bliley Act in Arizona. However, health plans that are subject to and comply with the HIPAA Privacy Rule (which should be all of them) are deemed to comply with the Insurance Information and Privacy Protection Act, except for requirements relating to pretext interviews, consumer investigative reports, adverse underwriting decisions, and Department of Insurance enforcement.[80] As a practical matter, health plans in Arizona must follow the HIPAA Privacy Rule regarding confidentiality requirements.

However, additional restrictions do apply to the Arizona Health Care Cost Containment System (AHCCCS)—Arizona's Medicaid program—and organizations that are AHCCCS contractors. The AHCCCS plan and its contractors may disclose

information related to AHCCCS applicants, eligible persons or members in much more limited circumstances than permitted by the HIPAA Privacy Rule.[81] Finally, some of the confidentiality laws mentioned in other sections of this report apply to certain types of health plans. For example, A.R.S. § 12-2991, *et seq.*—Arizona's general medical record confidentiality law—applies to "healthcare service organizations" (HMOs).

iv. Special Confidentiality Requirements for Mental Health Information

The Arizona mental health statutes have special restrictions on the disclosure of mental health information.[82] These statutes have limited applicability, however, and apply only to mental health providers and healthcare institutions licensed as behavioral health providers, including those providing inpatient and outpatient mental health services. A "mental health provider" includes physicians and other providers of mental health or behavioral health services who are involved in evaluating, caring for, treating or rehabilitating a patient. Other healthcare providers that provide mental or behavioral health services (such as hospital emergency departments that provide psychiatric consultations) are not subject to Arizona mental health statutes and regulations unless they are licensed as behavioral healthcare providers. Information contained in mental health records is confidential and may be released only as expressly permitted by the statute.[83]

v. Special Confidentiality Requirements for Genetic Testing Information

As the medical research community uncovers more information about the genetic basis for disease, many individuals are becoming increasingly concerned about the way in which information about their genetic makeup will be used. Some individuals who have had genetic testing or who have a family history of inherited disease have a fear that, if their insurance companies or employers have access to this information, it will lead to denial of insurance, termination of employment to avoid expected future medical costs, and other discrimination. In an effort to control the dissemination and use of this sensitive genetic information, Arizona enacted rigorous state laws controlling genetic testing and the disclosure of the resulting information.

The results of a genetic test are confidential and may be released only to individuals expressly listed in the statute.[84] Moreover, when a person has received genetic testing information from someone else, that recipient also must follow the state statutory rules on disclosing that information. Information and records held by a state agency or a local health authority relating to genetic testing information are confidential and are exempt from public copying and inspection.[85] Finally, health plans are subject to even more restrictive rules on disclosing genetic testing information, and may not release those results to any party without the written, express consent of the subject of the test.[86]

vi. Special Confidentiality Requirements for Communicable Disease Information, Including HIV/AIDS

Arizona law requires certain healthcare providers and administrators of healthcare entities to report to the local health agency and others when they identify a case or suspected case of certain communicable diseases. In the case of HIV, AIDS, and tuberculosis, the specific reporting requirements are identified in statute.[87] In addition to these specific statutory requirements, ADHS regulations identify additional reportable communicable diseases.[88]

Healthcare providers and others who obtain communicable disease information from providers must preserve the confidentiality of that information and may release it only for the purposes expressly listed in the statute.[89] Communicable disease information is broadly defined information and goes far beyond HIV and AIDS information; "communicable disease information" includes information about any "contagious, epidemic or infectious disease required to be reported to the local board of health" or ADHS that is in the possession of someone who provides health services or who obtains the information pursuant to a release (consent) signed by the patient.[90] At present, reportable communicable diseases include a wide variety of ailments, including flu, measles, mumps and other conditions that do not carry a stigmatizing effect.[91] Separate provisions govern when a state, county or local health department or officer may disclose communicable disease related information.[92] Finally, additional restrictions in the Insurance Code apply to health plans' release of HIV/AIDS

information.[93] Like alcohol and drug abuse treatment information under the federal "Part 2" regulations, an insurer's disclosure of HIV-related information must be accompanied by a written statement that warns that the information is protected by state law that prohibits further disclosure of the information without the specific written consent of the person to whom it pertains or as otherwise permitted by law.

vii. Special Confidentiality Requirements for Peer Review And Quality Improvement Information

Arizona law requires all licensed hospitals and outpatient surgical centers to engage in review of professional practices for the purpose of reducing morbidity and mortality and for the improvement of patient care in the institution.[94] While this kind of review is typically called "peer review," the Arizona confidentiality provisions also may encompass review work that may be labeled "quality review," performance improvement or the like.

With limited exceptions, Arizona law mandates the confidentiality of peer review proceedings, records and materials, and specifies that they are not subject to discovery except in limited circumstances.[95] Arizona's confidentiality mandate also provides that the contents and records of these proceedings are inadmissible as evidence in court. Participants are expected to keep such activities, records and materials confidential, and cannot be compelled to testify about peer review activities. However, if the file contains documents or materials that originated outside the peer review process, the fact that the documents or materials appear in the file generally does not cloak them in confidentiality.

(c) Minors' Health Information

An e-Health information exchange will have to deal with the difficult issue of who may gain access to minors' health information included in the exchange. The age of majority in Arizona is eighteen years old.[96] Before the age of majority, a parent or guardian of a minor generally is the "healthcare decision maker" of the minor and may access the health information of the minor.[97]

However, there are certain exceptions where the parent or guardian may not access a minor's health information in Arizona. Where a minor has the right to consent to the underlying healthcare and actually consents to that care, the parent or guardian would not be the "healthcare decision maker" of the minor and would not have the right to access the minor's health information without authorization of the minor.[98] In addition, if a court or other person authorized by law consented to the underlying healthcare, and the consent of the parent was not required, the parent does not have the right to access the minor's records for that particular care.[99] Finally, if in the provider's professional judgment it is not in the patient's best interest to treat the parent or guardian as the patient's representative and the provider has a reasonable belief that the patient has been abused or neglected by the parent or guardian or that treating the parent or guardian as the personal representative could endanger the patient, the provider may decide to not provide healthcare information to the parent or guardian.[100]

Arizona law sets forth a variety of circumstances where minors may consent to specific types of healthcare (such as treatment for venereal disease or HIV testing), and also sets out circumstances where a minor may consent to all healthcare. The following tables set forth the relevant statutes and case law regarding when minors may consent to medical care in Arizona.

Figure 1: Circumstances in which minors may consent to specific types of healthcare:

Condition	Age of Consent
Venereal disease	Any age.[101]
HIV testing	Can be any age, once the child has the "capacity to consent" (defined as the "ability, detemined without regard to the person's age, to under stand and appreciate the nature and consequences of a proposed health care service, treatment or procedure and to make an informed decision concerning that service, treatment or procedure").[102]
Abortion	Parental consent or judicial authorization required, unless pregnant minor certifies to the attending physician that the pregnancy resulted from sexual conduct with a family member, guardian, foster parent, or person who lives in the same household, or if the attending physician certifies in the minor's medical record that immediate abortion is necessary to avert the minor's death or that delay will create serious risk of substantial and irreversible impairment of major bodily function.[103]
Prenatal care/ reproductive services	Federal law requires that Title X-funded family planning services be available to minors without the need for parental consent.[104] The Arizona Attorney General has ruled that agencies or providers delivering family planning services funded in full or in part under Title V, X, XIX, or XX must provide these services upon consent of the minor.[105] For non federally-funded services, there is no specific law in Arizona, but United States Supreme Court precedent supports the extension of the right to consent to prenatal care and other reproductive services to all minors.[106]
Substance abuse treatment	12 yrs or older, where upon diagnosis of a licensed physician the minor is found to be under the influence of a dangerous drug or is suffering from withdrawal symptoms.[107] Where these substance abuse services are provided by a federally-assisted alcohol or drug abuse treatment program (see discussion above), the program may not release any information to parents or guardians without the minor's written consent.[108]
Victim of sexual assault	12 yrs.[109]

Figure 2: Circumstances in which minors may consent to any healthcare:

Condition	Age of Consent
Emancipated minors	An emancipated minor may consent to his or her own medical care.[110]
Married minors	A minor who is or has been married may consent to his or her own medical care.[111] Later annulment or dissolution does not affect adult status for purposes of consent.
Minors in military service	A minor presently enlisted in military service for the United States may consent to his or her own medical care.[112]
Homeless minors	A homeless minor may consent to his or her own medical care.[113]
Minors consenting on behalf of their children	Written parental consent is required for surgical treatment on behalf of a child, except in an emergency.[114] The statute does not specify that the parent must be an adult, which indicates that a minor parent may consent on behalf of her child.

(d) Government Records

Arizona's Public Records Law provides that "[p]ublic records and other matters in the custody of any officer" must be open to public inspection.[115] If a record is "reasonably necessary or appropriate to maintain an accurate knowledge of … official activities and of any activities which are supported by funds from the State," the records are presumed open to the public. This includes electronic records.

While the Arizona Public Records Law contains access exemptions only for personal information related to law enforcement officers and information about the location of archeological discoveries,[116] Arizona courts have held that an agency may withhold documents where another statute or regulation provides confidentiality for the records, to protect the privacy of individuals, or where disclosure would be detrimental to the state's interests. The Arizona Public Records Law thus does not provide access to health records held by a public entity.

Individual Rights

The HIPAA Privacy Rule requires HIPAA covered entities to provide certain rights to the individuals they serve.[117] These individual rights include:

- The right to access and copy individuals' own health information held by the covered entity;

- The right to request an amendment to their health information if that information is erroneous or incomplete;

- The right to get a list (called an "accounting") of any public-purpose disclosures;

- The right to request limits on how the covered entity may use their health information for basic healthcare functions, such as treatment and payment;

- The right to request communications containing their health information in a confidential manner; and

- The right to receive a notice of privacy practices that describes how the covered entity may use or disclose their health information.

Similar access rights are provided in Arizona law, which do not extend beyond the HIPAA rights.[118]

Medical Records Administration

(a) Retention of Medical Records

Under Arizona law, healthcare providers must retain the original or copies of patient medical records for at least six years after the last date an adult patient received medical or healthcare services from that provider (or from discharge from a nursing home).[119] ADHS interprets this language as requiring retention for six years of the entire record every time a patient is seen. For example, if a patient is last seen in 2000, the *entire* record for that patient must be kept until 2006 (even if that record contains entries that are made before 2000). If the patient is a child, a healthcare provider must retain the original or copies of the patient's medical records until the child is 21 years old, or for at least six years after the last date the child received medical or healthcare services from that provider, whichever date occurs last.[120]

"Source data," however, may be maintained separately from the medical record and must be retained for six years from the date of collection of the source data. "Source data" is defined as "information that is summarized, interpreted or reported in the medical record, including x-rays and other diagnostic images."[121] That means that X-rays, MRI images, electrocardiograms, echocardiograms, fetal monitoring strips, and other data for which there is a report in the medical record may be retained for a shorter period of time than the medical record.

Federal medical record retention requirements are slightly different. The Medicare Conditions of Participation require regulated entities to maintain medical records in their original or legally reproducible form for three to ten years, depending on the type of provider.[122] The HIPAA Privacy Rule requires HIPAA covered entities to maintain its policies and procedures, any communication the rule requires to be in writing, and an "action, activity, or designation" the rule requires to be documented, including many communications with patients, for six years.[123] Hospitals subject to the Emergency Medical Treatment and Active Labor Act of 1986 must keep and maintain a number of records related to emergency care for five years.[124] Clinical laboratories must retain records of patient testing and instrument printouts for at least two years.[125] Immunohematology records and transfusion records must be retained for no less than five years under the Clinical Laboratory Improvement Amendments.[126] Records of blood and blood product testing must be maintained for a period of not less than five years after processing records have been completed—or six months after the latest expiration date—whichever is later.[127] Of course, lab test results contained in the patient's medical record must be retained as part of the medical record, and would also be subject to the Arizona retention requirements.

(b) Medical Record Content

An Arizona statute requires hospitals and other healthcare institutions to keep "medical records," which are defined to include:

"[A]ll communications related to a patient's physical or mental health or condition that are recorded in any form or medium and that are maintained for purposes of patient diagnosis or treatment, including medical records that are prepared by a health care provider or other providers. Medical records do not include materials that are prepared in connection with utilization review, peer review or quality assurance activities, including records that a health care provider prepares pursuant to section 36-441, 36-445, 36-2402 or 36-2917. Medical records do not include recorded telephone and radio calls to and from a publicly operated emergency dispatch office relating to requests for emergency services or reports of suspected criminal activity, but shall include communications that are recorded in any form or medium between emergency medical personnel and medical personnel concerning the diagnosis or treatment of a person."[128]

ADHS regulations have more specific requirements regarding what type of records providers must keep, depending on the type of provider.[129] The Medicare Conditions of Participation also have specific requirements for record content, which differ depending on type of provider. Finally, clinical laboratories in Arizona must comply with the federal Clinical Laboratory Improvement Amendments.[130]

(c) Format

Arizona law does not prohibit electronic records. The Arizona Electronic Transactions Act (AETA),[131] a version of the Uniform Electronic Transactions Act (UETA), gives electronic records the same validity and enforceability as written records and paper-based transactions. In only one instance, outdated licensure regulations require healthcare organizations to have medical records "recorded in ink."[132]

Telemedicine

Telemedicine in Arizona includes telephone consultation, videoconferencing, interactive television examinations, interactive Internet communications, and remote evaluations of digital images *in the presence of the patient*.[133] This includes physician-to-physician interaction in the presence of the patient, and also involves patient-to-provider communications at a distance. In Arizona, it would not be "telemedicine" for a physician to consult with another physician at a distance using real-time audio or video communications if the patient is not present during the communication. Before a healthcare provider delivers healthcare through telemedicine, the treating provider generally must obtain verbal or written informed consent from the patient or from the patient's healthcare decision maker.

A patient treated through telemedicine is, of course, entitled to confidentiality, and medical reports from telemedicine consultations must be treated as part of the patient's medical record. The Arizona statute does not contain any additional restrictions on the use or disclosure of health information in telemedicine.

When a physician not licensed in Arizona provides telemedicine services to a patient located in Arizona, that physician may be engaged in the unlicensed practice of medicine. In fact, it is a class 5 felony for someone "unlicensed pursuant to Chapter 13" (Arizona's Medical Practice Act) to engage in the practice of medicine.[134] Unlicensed practice of medicine also may support exclusion from the Medicare and Medicaid programs.[135] However, the medical licensure statute provides that Arizona licensure is not required for physicians outside of Arizona who are authorized to practice medicine in another jurisdiction, if the physician engages in an a single or infrequent consultation with a doctor of medicine licensed in Arizona regarding a specific patient or patients.[136] The terms "single or infrequent consultation" is not defined in statute, so physicians should exercise care in relying on this statute to involve non-Arizona providers in telemedicine consultations.

Electronic Signatures

The Arizona Electronic Transactions Act (AETA)[137] gives electronic signatures the same validity and enforceability as written signatures. AETA's definition of an "electronic signature" is "an electronic sound, symbol or process, attached to or logically associated with a record and that is executed or adopted by an individual with the intent to sign the record." Under this law, an electronic signature "satisfies any law that requires a signature." An electronic signature is attributable to a person if the signature was the act of the person or the person's electronic agent, which may be shown in any manner, including the adoption of a "security procedure" that verifies that an electronic signature is of a specific person, such as algorithms or other codes, identifying words or numbers or encryption, callback or other acknowledgement procedures. Electronic signatures adopted to implement an e-Health information exchange thus should implement a security procedure that satisfies the requirements of the Arizona statute.

Fraud and Abuse

The federal Anti-Kickback Statute prohibits the payment or solicitation, offer or acceptance of any "remuneration" (payment) in cash or in kind in exchange for referring or recommending the referral of items or services to be paid by a federal healthcare benefit program.[138] Another federal law—the physician self-referral prohibition (the "Stark Law")[139] prohibits a physician from referring Medicare patients for certain designated health services to an entity with

which the physician has a financial relationship. While the Anti-Kickback Statute has "safe harbors" and the Stark law has "exceptions," these complicated laws presently pose a real barrier to hospitals and other healthcare organizations assisting physicians and other individual providers with obtaining the software, hardware, and training necessary to implement EHRs. In fact, according to a 2004 Government Accountability Office report, physicians "may be reluctant to accept such resources from a hospital or other provider, knowing that the resources may be viewed as remuneration and that any referrals the physician subsequently makes to the provider may be viewed as having been made in return for such resources in violation of the [Anti-Kickback] law."[140] Hospitals and other healthcare organizations may also be unwilling to provide those resources to physicians for fear that this will be a violation of the Anti-Kickback Statute and Stark Law. The federal government recently issued proposed regulations to remove some of these barriers,[141] however, and expects to finalize these regulations by March, 2006.

Arizona also has a statute governing kickbacks for services provided in the AHCCCS program. This statute makes it a felony to knowingly offer, deliver, receive or accept any rebate, refund, commission, preference or other consideration as compensation for referring a patient, client or customer to any individual, pharmacy, laboratory, clinic or healthcare institution providing medical or health-related services or items under the AHCCCS program.[142]

Antitrust

The federal and state antitrust laws do not pose a barrier to the development of an e-Health information exchange system in Arizona.[143] However, as the project moves forward, the participants should pay attention that meetings, information exchanges, standard setting, and vendor selection comply with the antitrust laws.

"The courts and the federal antitrust agencies have recognized that competitor collaborations can promote competition by enabling participants to combine complementary capabilities or resources, to jointly fund expensive innovation efforts, or otherwise to achieve efficiencies that result in lower prices, improved quality, or expedited development of new products."[144] However, an e-Health information exchange program could create antitrust exposure if the "activities are designed to, or have the effect of, reducing competition and stabilizing prices."[145] The participants should carefully evaluate the exchange of any price- or cost-related information and vendor selection.

Appendix F: Glossary

AHIC   American Health
Information Community

AHITA   Arizona Health Information
Technology Accelerator

AHRQ   Agency for Healthcare Research
Quality (part of DHHS)

AOMA   Arizona Osteopathic Medical Association

APIPS   Arizona Partnership for Implementing
Patient Safety

AQA   Ambulatory care Quality Alliance

BTE   Bridges to Excellence

AzAFP   Arizona Association of Family Physicians

AzHHA   Arizona Hospital and
Healthcare Association

AzRHA   Arizona Rural Health Association

CCIP   Chronic Care Improvement Program

CDC   Centers for Disease Control and
Prevention (part of DHHS)

CITL   Center for Information Technology
Leadership

CMS   Centers for Medicare and Medicaid
Services (part of DHHS)

CPOE   Computerized Physician Order Entry

DHHS   US Department of Health and Human
Services (also HHS)

DOQ-IT   Doctor's Office Quality –
Information Technology

eHI   eHealth Initiative Foundation

EHR   Electronic Health Record
(preferred over EMR)

EMR   Electronic Medical Record

FDA   Food and Drug Administration
(part of DHHS)

HIE   Health Information Exchange
(proto-RHIO)

HIPAA   Health Insurance Portability and
Accountability Act of 1996

HIT   Health Information Technology

HRSA   Health Resources and
Services Administration

IOM   Institute of Medicine (part of DHHS)

LHRP   Leapfrog Hospital Rewards Program

MedPAC   Medicare Payment Advisory Commission

MITA   Medicaid Information
Technology Architecture

MITS   Medicaid Information
Technology System

NCQA   National Committee for
Quality Assurance

NHIN   National Health Information Network
(see also RHIO)

NORC   National Opinion Research Center

NQF   National Quality Forum

NRCHIT   National Resource Center for Health
Information Technology (see ARHQ)

ONCHIT   Office of the National Coordinator for
Health Information Technology
(part of DHHS)

RHIO   Regional Health Information
Organization
(subset of NHIN, can be state)

SARS   Severe Acute Respiratory Syndrome
            (disease)

SOW   Scope of Work
            (CMS work efforts assigned to
            QIOs like HSAG)

VA   Department of Veterans Affairs

V. Notes

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[18] See Framework for Strategic Action supra note # citing the following sources. Reduce laboratory and radiology test ordering by 9% to 14%. Bates D.W., et al. Am. J. Med.106(2), 144-50 (1999); Tierney, W.M., et al. Ann. Intern. Med. 107(4), 569-74 (1987); Tierney, W.M., et al. N. Engl. J. Med. 322(21), 1499-1504, (1990); Tierney, W.M., et al. JAMA 259(8), 1194-98 (1988). Others noted in Framework.

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[65] Oregon eGov. 14 Dec. 2005 http://egov.oregon.gov/DAS/OHPPR/HPC/docs/EHR_LegReport_March05.pdf.

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[68] For a more complete discussion of the legal issues involved in creating electronic health networks, see Rosati, K, and Lamar, M. editors, American Health Lawyers Association, *The Quest for Interoperable Electronic Health Records: A Guide to the Legal Issues Involved in Establishing a Health Information Network* (2005), *available at* www.healthlawyers.org.

[69] HIPAA, Pub. L. No. 104-191 (Aug. 21, 1996), §§ 261-264, enacting Social Security Act §§ 1171-1179, codified at 42 U.S.C. § 1320d-2 et seq.

[70] 45 C.F.R. Part 160 and Part 164, Subpart E.

[71] 45 C.F.R. Part 160 and Part 164, Subpart C.

[72] These "public purpose" disclosures include disclosures of health information that are:
(1) Required by law;
(2) For certain public health activities, such as communicable disease reporting and child abuse reporting;
(3) About victims of abuse, neglect or domestic violence;
(4) For health oversight activities, such as to a state department of health services to regulate th health care organization;
(5) For judicial and administrative proceedings, such as in response to court orders or subpoenas;
(6) For certain law enforcement purposes, such as when presented with a search warrant or to identify a missing person;
(7) To coroners, medical examiners and funeral directors about deceased persons;
(8) For cadaveric organ, eye or tissue donation purposes;
(9) For research;
(10) To avert a serious threat to health or safety;
(11) For certain government functions, such as military and veterans activities, national security and intelligence, protective services for the President, correctional organizational custodial situations, or government programs providing public benefits; and
(12) For workers' compensation.

[73] See 42 C.F.R. §§ 2.1 through 2.67.

[74] See, e.g., 42 C.F.R. Part 482 (Hospital Conditions of Participation).

[75] Privacy Act of 1974, Pub. L. No. 93-579 (1974), 5 U.S.C. § 552a.

[76] Arizona Revised Statutes (A.R.S.) § 12-2291 through § 12-2296.

[77] A.R.S. § 12-2294(C), *as amended by* H.B. 2397, 46th Leg., 2d Sess. (2004).

[78] See R9-10-209 (patient rights requirements for hospitals); R9-10-228 (medical records requirements for hospitals); R9-10-505 (patient rights requirements for adult day health care facilities); R9-10-511 (medical records requirements for adult day health care facilities); R9-10-710 (patient rights requirements for assisted living facilities); R9-10-714 (medical records requirements for assisted living facilities); R9-10-802 (general requirements for hospices, including patient rights); R9-10-812 (medical records requirements for hospices); R9-10-907 (patient rights requirements for nursing care institutions); R9-10-913 (medical records requirements for nursing care institutions); R9-10-1107 (patient rights requirements for home health agencies); R9-10-1108 (medical records requirements for home health agencies); R9-10-1403 (patient rights requirements for recovery care centers); R9-10-1409 (medical records requirements for recovery care centers); R9-10-1507 (patient rights requirements for abortion clinics); R9-1511 (medical records requirements for abortion clinics); R9-10-1703 (patient rights requirements for outpatient surgical centers); R9-10-1710 (medical records requirements for outpatient surgical centers); A.R.S. § 32-1401 (allopathic physicians) (defining "unprofessional conduct" as including "[i]ntentionally disclosing a pro-fessional secret or intentionally disclosing a privileged communication except as either act may otherwise be required by law," interpreted as permitting physicians to comply with HIPAA); A.R.S. § 32-101 (naturo-pathic physicians) (same); A.R.S. § 32-1854 (osteo-pathic physicians) (same); A.R.S. § 32-2933 (homeo-pathic physicians) (same).

[79] A.R.S. § 20-2101, *et seq.*

[80] A.R.S. § 20-2122 (exempting HIPAA-compliant entities from §§ 20-2103, 20-2107, 20-2110, 20-2111, 20-2112, and 20-2114 through 20-2121).

[81] A.R.S. § 36-2901 *et seq.*; A.A.C. R9-22-512.

[82] A.R.S. § 36-501 *et seq.*

[83] A.R.S. § 36-509(1)-(14), *as amended by* SB 1353, 47th Leg., 1st Reg. Session (2005).

[84] A.R.S. §§ 12-2802, *as amended* HB 2397, 46th Leg., 2d Rd. Sess. (2004).

[85] A.R.S. § 12-2804.

[86] A.R.S. § 20-448.02.

[87] A.R.S. § 36-621 (HIV/AIDS), A.R.S. § 36-723(D) (tuberculosis).

[88] A.A.C. R9-6-101 *et seq.*

[89] A.R.S. § 36-664.

[90] A.R.S. § 36-661(4) and (5).

[91] See R9-6-202 (Reporting Requirements for a Health Care Provider or an Administrator of a Health Care Institution or Correctional Facility; R9-6-203 (Reporting Requirements for an Administrator of a School, Child Care Establishment, or Shelter); R9-6-204 (Clinical Laboratory Director Reporting Requirements); R9-6-205 (Reporting Requirements for a Pharmacist or Pharmacy Administrator); R9-6-206 (Local Health Agency Responsibilities Regarding Communicable Disease Reports); R9-6-207 (Federal or Tribal Entity Reporting).

[92] A.R.S. § 36-661.

[93] A.R.S. § 20-448.01.

[94] A.R.S. § 36-445.

[95] A.R.S. § 36-445.01(A).

[96] A.R.S. § 1-215.

[97] A.R.S. § 12-2293. The HIPAA Privacy Standards also permit a patient's legal representative—health care decision maker—to have access to the patient's records without authorization in most circumstances. 45 C.F.R. § 154.502(g)(1).

[98] 45 C.F.R. § 164.502(g)(3).

[99] Id.

[100] 45 C.F.R. § 164.502(g)(1).

[101] A.R.S. § 44-132.01.

[102] A.R.S. § 36-664. See also A.R.S. § 36-661(2) (defining "capacity to consent").

[103] A.R.S. § 36-2152.

[104] 42 C.F.R. § 59.5(a)(4); 42 C.F.R. § 59.11.

[105] Ariz. Op. Atty. Gen. No. 77-37, p. 131, 1976-77.

[106] See e.g., *Carey v. Population Services Int'l*, 431 U.S. 678, 97 S. Ct. 2010 (1977).

[107] A.R.S. § 44-133.01.

[108] 42 C.F.R. § 2 14. Even where minors are under 12 years of age, the program must seek the minor's co-consent to treatment, and may share information about the minor's application to treatment with the parents only if: (1) the minor consents, or (2) the minor lacks capacity to make a rational choice about such consent (because of extreme youth or a mental or physical condition), and where the minor's situation poses a substantial threat to the life or physical well being of the minor or another person). *Id.*

[109] A.R.S. § 13-1413. This applies if the minor's parents or guardians were not available to provide consent.

[110] See A.R.S. § 44-132(A). A minor may apply for emancipation under the process set forth in A.R.S. § 12-2451, which requires a minor to demonstrate that he or she is at least sixteen years of age, is a resident of this state, is financially self-sufficient, and is not a ward of the court or in the custody of a state agency. (For purposes of eligibility for assistance, the definition of emancipated is different. *See* A.R.S. § 46-296 and § 46-354; A.A.C. R6-12-608.)

[111] See A.R.S. § 44-132(A).

[112] *Tencza v. Aetna Casualty & Surety Co.*, 111 Ariz. 226, 527 P.2d 97, 99 (Ariz. 1974).

[113] See A.R.S. § 44-132(A) (defining homeless minor as "individual under the age of eighteen years living apart from his parents and who lacks a fixed and regular nighttime residence or whose primary residence is either a supervised shelter designed to provide temporary accommodations, a halfway house or a place not designed for or ordinarily used for sleeping by humans." A.R.S. § 44-132(C).

[114] See A.R.S. § 36-2271.

[115] A.R.S. § 39-121 and § 39-121.01.

[116] A.R.S. §§ 39-123 through 39-125.

[117] See 45 C.F.R. §§ 164.520-164.528.

[118] A.R.S. § 12-2293 (patient right to access records); R9-22-512(E) (rights to access records under AHCCCS regulations).

[119] A.R.S. § 12-2297.

[120] A.R.S. § 12-2297.

[121] A.R.S. § 12-2291(7).

[122] See, 42 C.F.R. § 482.24(b)(1) (hospitals; 5 year retention); 42 C.F.R. § 50.309 (abortions and related medical services; 3 year retention); 42 C.F.R. § 416.47 (ambulatory surgical centers; record retention not specified); 42 C.F.R. § 485.721(d); 42 C.F.R. § 486.161(d) (outpatient physical therapy and speech language pathology services; 5 years after discharge for adult patients and 3 years after patient comes of age under state law (whichever is longer)); 42 C.F.R. § 491.10(c) (rural health clinics; 6 years from the date of last entry); 42 C.F.R. § 485.60(c) (comprehensive outpatient rehabilitation facilities; 5 years after dis-

charge); 42 C.F.R. § 485.638(c) (critical access hospitals; 6 years from date of last entry); 42 C.F.R. § 405.2139(e) (end stage renal disease services; 5 years from date of discharge for adult patients, 3 years from the date minor patient comes of age (whichever is longer)); 42 C.F.R. § 484.48(a) (home health agencies) (5 years after the month of the cost report is filed with the intermediary); 42 C.F.R. § 418.74 (hospice; retention not specified); 42 C.F.R. § 482.53(d) (hospital nuclear medicine services; 5 years); 42 C.F.R. § 482.26(d) (hospital radiologic services; report copies and printouts, films, scans, and other image records for 5 years); 42 C.F.R. § 493.1105 (laboratory immunohematology, 5 years; laboratory pathology tests, 10 years after the date of reporting; all other lab records, 2 years); 42 C.F.R. § 483.75(l)(2) (long-term care facilities; 5 years from date of discharge for adult patients and 3 years after resident reaches legal age under state law (whichever is longer)); 21 C.F.R. § 900.12(c)(4)(i) (mammography screening or diagnostic services; 5 years, or no less than 10 years if no additional mammograms are performed at the facility); 42 C.F.R. § 482.61 (psychiatric hospitals; 5 years).

[123] 45 C.F.R. § 164.530(j).

[124] 42 C.F.R. § 489.20(r)(1-3) (records include (1) Medical records and other records related to persons transferred to or from the hospital; (2) A list of physicians who are on call for duty after the initial examination of the patient to provide treatment necessary to stabilize a person with an emergency medical condition; and (3) A central log on each person who comes to the hospital's emergency department seeking assistance and an explanation of the treatment given to that patient).

[125] 42 C.F.R. § 493.1105.

[126] *Id.*

[127] *Id.*

[128] A.R.S. § 12-2291(5).

[129] See A.A.C. R9-10-228 (hospital inpatient, outpatient, and emergency department record content requirements); R9-10-511 (adult day health care facilities); R9-10-714 (assisted living facilities); R9-10-812 (hospice); R9-10-913 (nursing care institution); R9-10-1108 (home health agencies); R9-10-1409 (recovery care centers); R9-10-1511 (abortion clinics); R9-10-1710 (outpatient surgical centers).

[130] See 42 U.S.C. § 263a; 42 C.F.R. § 483.1 *et seq.* and § 493.1283 (listing required records).

[131] A.R.S. § 44-7001, *et seq.*

[132] See R9-10-511 (C) (participant records requirements for adult day health care facilities).

[133] A.R.S. § 36-3601, *et seq*

[134] A.R.S. § 32-1455(A).

[135] 42 U.S.C. § 1320a-7

[136] A.R.S. § 32-1421(B).

[137] A.R.S. § 44-7001, *et seq.*

[138] See, 42 U.S.C.A. § 1320q-7b(b).
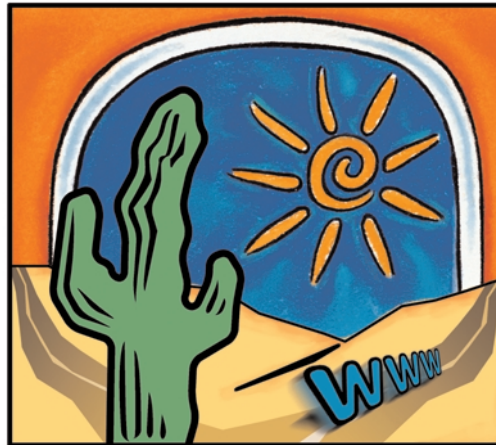
[139] 42 U.S.C. § 1395nn; 42 C.F.R. Parts 411 and 424.

[140] "HHS's Efforts to Promote Health Information Technology and Legal Barriers to Its Adoption," GAO Briefing for Congressional Staff, Senate Committee on Health, Education, Labor and Pensions, Report GAO-04-991R, p. 46 (August 13, 2004) (the "GAO Briefing").

[141] See 70 Federal Register 59182 (Oct. 11, 2004) (proposed rule from the Centers for Medicare and Medicaid Services to create additional Stark exceptions for e-prescribing and EHR); 70 Federal Register 59015 (Oct. 11, 2004) (proposed rule from the HHS Office of Inspector General to create additional safe harbors under the Anti-Kickback Statute for e-prescribing and EHR).

[142] A.R.S. § 13-3713.

[143] The Clayton Act prohibits exclusive dealing arrangements, tying arrangements and requirements contracts in the sale of goods or commodities where the effect of those arrangements may be substantially to lessen competition. 15 U.S.C. § 14 (2000). The Sherman Act prohibits contracts, combinations, and conspiracies that unreasonably restrain trade. 15 U.S.C. § 1 (2000). The Federal Trade Commission (FTC) Act prohibits unfair methods of competition, including but not limited to the acts and practices condemned by the Sherman and Clayton Acts. 15 U.S.C. § 45 (2000). *See also* A.R.S. § 44-1401 *et seq.*

[144] Rosati, K. and Lamar, M. "The Quest for Interoperable Electronic Health Records: A Guide to the Legal Issues Involved in Establishing a Health Information Network." American Health Lawyers Association 2005. 14 Dec 2005 http://www.healthlawyers.org .